



BEYOND 2000:

DEMOGRAPHIC CHANGE, EDUCATION AND THE WORK FORCE

Existing Relationships and the Prognosis in New England

Funding for this study provided by
NELLIE MAE

Stephen P. Coelen
Massachusetts Institute for Social and Economic Research
MISER
University of Massachusetts at Amherst
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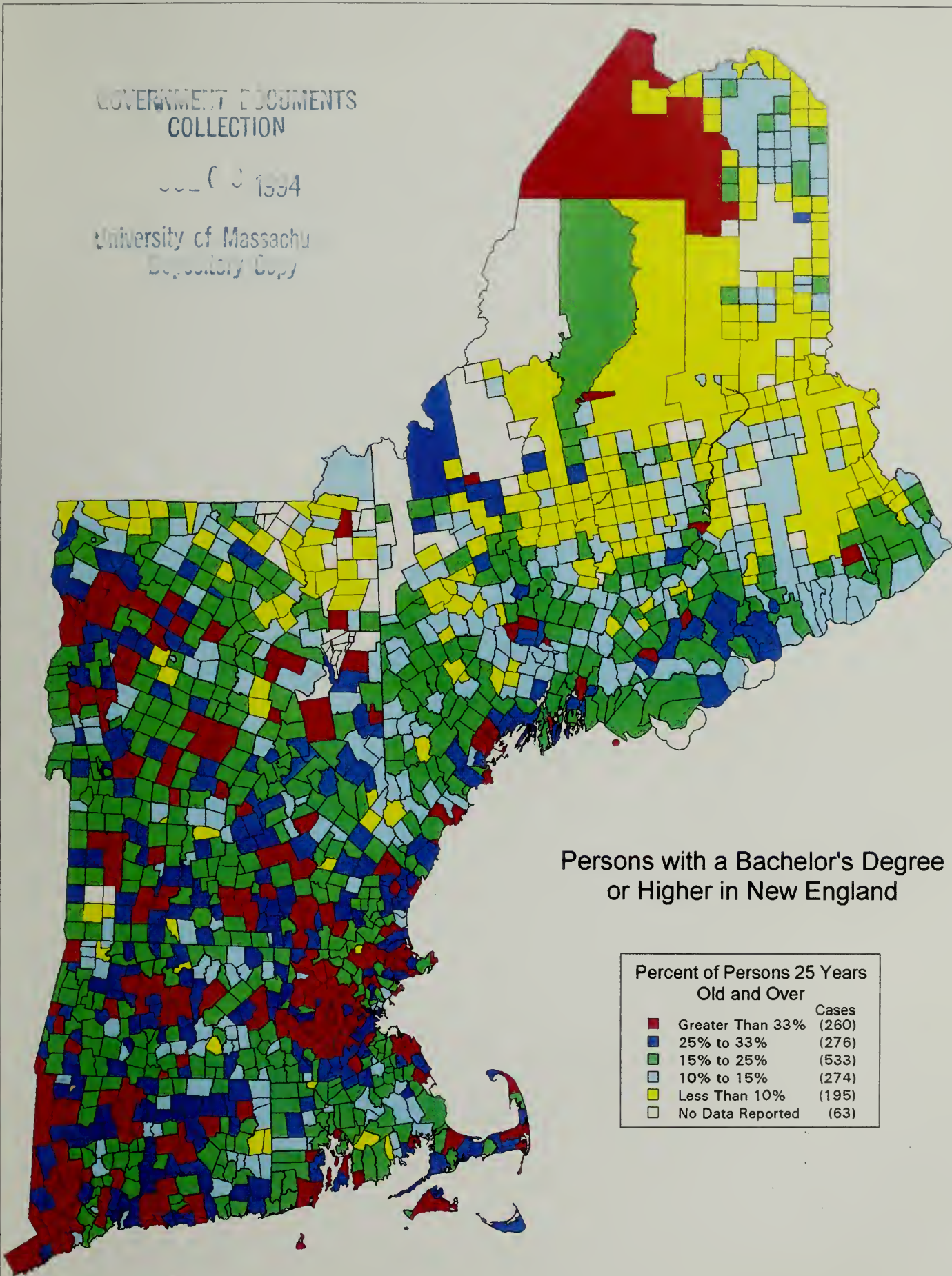
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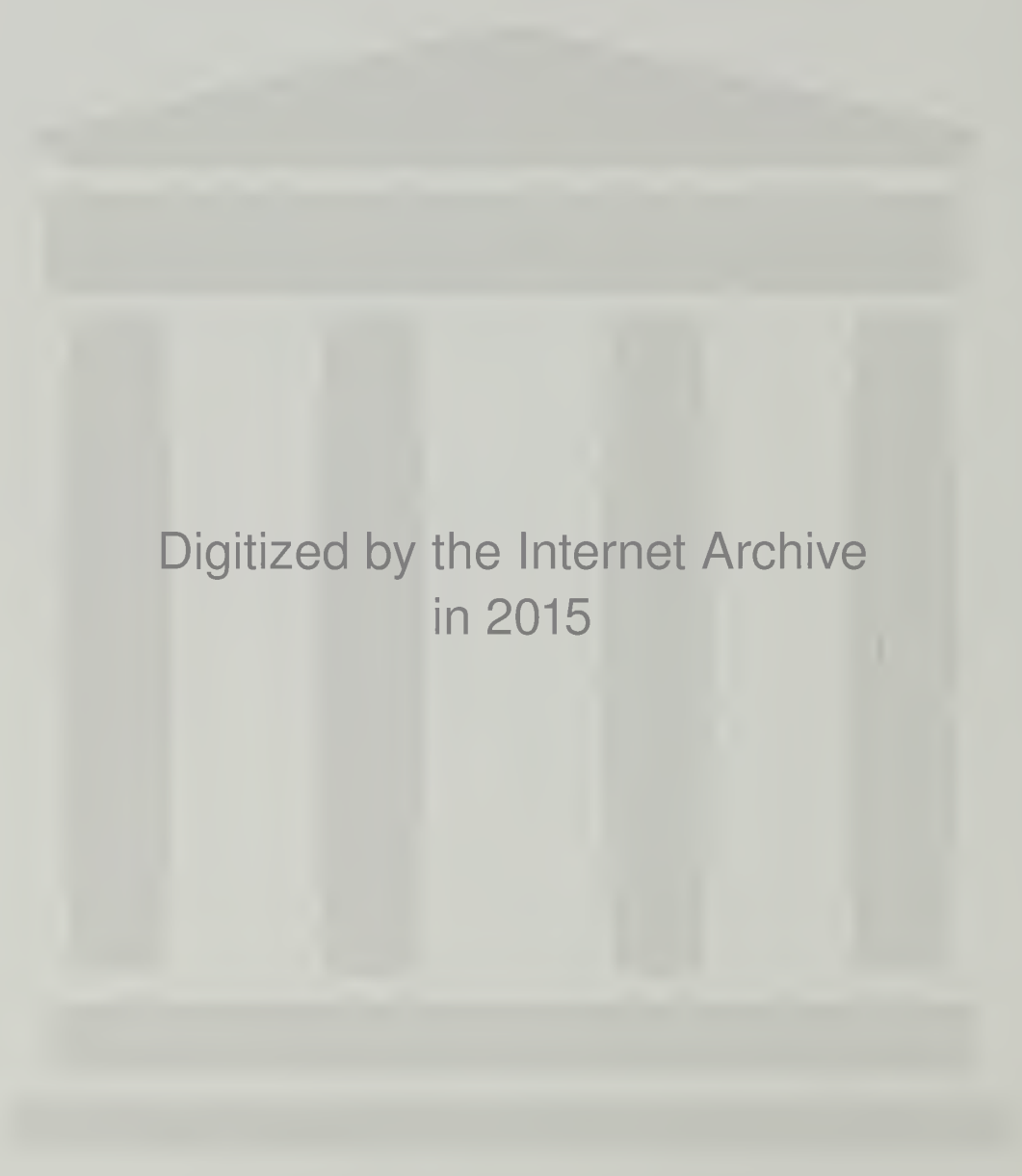
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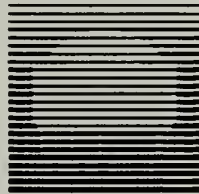
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BEYOND 2000:

DEMOGRAPHIC CHANGE, EDUCATION AND THE WORK FORCE

Existing Relationships and the Prognosis in New England

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**N E L L I E
M A E**

(The New England Education Loan Marketing Corporation)

Stephen P. Coelen
Massachusetts Institute for Social and Economic Research
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1993

ACKNOWLEDGMENTS

The impetus for this study came from NELLIE MAE, a nonprofit student loan organization which is interested in identifying the barriers to higher education access in New England. This paper was written from research conducted from March 1992 through January 1993. The full volume of work included investigations of demographic change taking place at both aggregate and desegregate levels of analysis, evaluating both cities and towns within the region, the six New England states, and the region as a whole. Only a small portion of this work is reported here. Writing proceeded in the following months and was completed in the Spring of 1993. The project was the result of many collaborations. Nellie Mae, The New England Loan Marketing Corporation, provided significant funding which allowed a research team assembled at the University of Massachusetts, Amherst to evaluate data newly emerging on the New England states from the 1990 Census. Data used was taken from the Summary Tape Files 3A (STF3A) for the New England states and sub-areas.

The research team included Michael Podgursky, Professor of Economics; Patricia Crosson, Professor of Educational Policy and Administration; Ann Schumer, Adjunct Research Associate of MISER and former director of the regional office of the Massachusetts Department of Education in Springfield; Michael Lewis, Professor of Sociology; and Stephen Coelen, Director of MISER and Professor of Political Science. These faculty, respectively, worked independently on issues of the impact of demographic change on the labor market; the policy implications of change in higher education; the implications of change similarly in elementary and secondary education; the relationship between educational attainment, job holding and welfare; and analysis of the Census data to determine the broad patterns of change happening over the decades. Several graduate research assistants participated in the research, chief among them, Richard Ureña who was the chief research assistant overseeing our data base management efforts and programming several of the analytical algorithms; Donna Rudek who compiled much of the literature review in higher educational policy analysis applicable to the subject matter at hand; Karen MacKinnon who oversaw our use of the 1990 Census data; and Nicholas Cracknell who oversaw much of the graphical work, mapping and printing of the final color text output. MISER's professional staff also contributed significantly to the project with John Gaviglio producing intricate boundary files of the New England area and mapping much of the data used in the project, Roy Williams sharing his expertise on Census definitions with the graduate research assistant staff, and Nora Groves conducting the CPS runs which obtained the income data by educational attainment. Of course, without Noel Yu, Assistant Director of MISER, who orchestrates the computer systems environment within the Institute and Linda Downs-Bembury who co-ordinates personnel and accounting, the project would have fallen flat in its early stages.

Of this summary document, credit is owed to Ann Schumer who wrote the original drafts of the recommendations section on elementary and secondary education and to Pat

Crosson and Donna Rudek who wrote the original drafts of the recommendations section on higher education. Greg Sandler, an independent consultant hired by MISER, edited much of the longer documents that were used in compiling this summary document.

Of course, beyond the research team, much credit is due also to the support, more than financial, given to us by the Nellie Mae team, including Edgar Smith, now retired as Vice President for Academic and Community Programs, Sylvia Salas, Director of the Nellie Mae Fund for Education, and Diane Saunders, Vice President for Communications and Public Affairs. These individuals were not only gentle in keeping the project on track time-wise but also in their insistence that the final product be readable by a wide audience. They gave many hours of time listening to findings, discussing them and helping fashion a more readable document. Then, finally, Dr. John Hoy, President of the New England Board of Higher Education, was very helpful in his insights and in his comments and enthusiasm for getting the product out to a wide audience.

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Introduction

Demographic change in New England has been particularly fast with regard to changing the racial and ethnic composition as well as to shifting the age distribution of the population. Part I of this study evaluates the effect of such demographic changes first on the educational attainment of the region's population and then on the ultimate preparedness of the region's labor force.

Key factors relating demographic change to educational attainment are highlighted in each of the next eight sections on:

- Changes in wage and salary earnings by level of educational attainment in New England from 1970 to 1990.
- Current levels of educational attainment in New England.
- Changes in the educational system's overall performance over time measured in terms of retention and participation.
- Differences in educational performance by race and ethnicity.
- Differential growth and the explanatory factors of faster growth among the region's minority populations.
- Clustering of differential educational "success" among communities: are race and ethnicity all that matter?
- The impact of demographic change on higher education—competition among institutions: cost inflation, enrollment change, and institutional access.
- Expectations about the future:
 - (i) high school completions
 - (ii) effects of economic growth and improved retention on school completions, and
 - (iii) the future distribution of educational attainment in the work force if continuing improvement in current educational performance is not implemented.

The study shows that the aggregate educational attainment of the region is heavily related to performance differences among racial and ethnic sub-populations. Given that "minority populations" in some of the New England states will rise to as much as a third of their total, these populations will play an increasing role in influencing the educational attainment of workers entering the regional labor market. State policy throughout New England, therefore, must focus not only on increasing the number of college graduates, but also on achieving a balance in the educational attainment of population arrayed by race and ethnicity.

Evidence that major imbalances currently exist, however, in the New England labor market could not be clearer. These imbalances hamper the effectiveness of business development in New England and underscore the necessity of implementing educational policy to increase educational attainment in the region.

Part II of this study follows to present recommendations for educational change. These are aimed at improving the performance of low income and minority students. Recommendations are divided into two groups, those pertaining to elementary and secondary education, and those pertaining to higher education. Some recommendations derive directly from introspection of the data but most come from a careful review of the literature and policy making activity already underway. Many additional facets of policy making might have been considered, but ours are limited only to those which deal with the conclusions of Part I of this study.

SUMMARY SECTION 1:

Economic Returns to Education

Imbalances exist in New England's supply and demand of workers which have created mismatches between business needs and skill levels in the available labor pool. Thus, the costs of highly educated workers are greater than they would be if New England schools were providing more highly educated workers to the labor market.

Economically, it is in each person's interest -- and in society's interest -- to strive for a high level of educational attainment. Nationally, in 1990:

- Median incomes were twice as high for high school graduates, at \$12,924, than for people with less than a high school degree, at \$5,904.
- Individuals with Associates degrees earned on average \$20,000 annually, with Bachelor's recipients earning approximately \$25,000, Master's degree recipients \$33,000, Doctoral recipients \$46,000 and Professional degree recipients \$60,000 on average per year.

Relative wage shifts among skilled and unskilled workers serve as good indicators of changing labor market conditions. Regionally:

- Workers without high school degrees lost economic ground between 1989 and 1991, with salary income actually decreasing 6.2% in absolute dollars during this period.
- People with four-year degrees enjoyed the greatest growth in median income between 1989 and 1991, with an increase of 3.2% in absolute dollars. Those with a high school diploma or with some college saw no change in wage and salary income between 1989 and 1991.

PART I: Review of the Status of the Region's Educational Performance

1. Economic Returns to Education

Laws of supply and demand generally exert control over the level of U.S. and regional wages. Relative wage shifts among skilled and unskilled workers have therefore served as good indicators of changing labor market conditions. Except for the complications added by shifts in productivity among different labor groups, increases in wage rates identify workers who are in short supply relative to others whose wages remain more stationary. Difficulty arises then only in how to define "skilled" and "unskilled." Herein, we take educational attainment as a good proxy for skill levels and evaluate wage and salary income relative to educational attainment. This gives a clear view of relative labor market conditions for "skilled" and "unskilled" workers.

A 1993 report from the U.S. Bureau of the Census has already shown significant national earnings differentials among people with different levels of educational attainment. For example, median incomes were twice as high for high school graduates, at \$12,924, than for people with less than a high school degree, at \$5,904. Other significant income differences appear between people with high school degrees (but without college experience) and persons with associate and/or bachelor degrees. The biggest income differences, per year of additional education, appear between workers with four-year degrees and workers with graduate-level degrees.

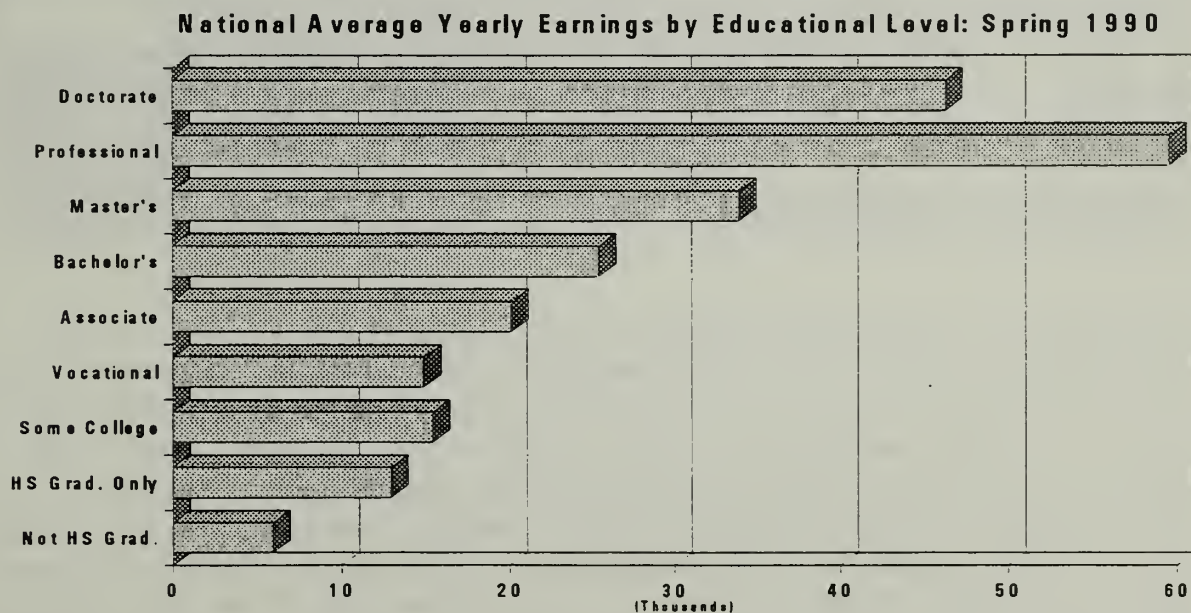


Figure 1

Such Census Bureau data on the national market is depicted in Figure 1. The data underscores the "real value" of educational attainment. High returns to education produce quick payoffs of the cost of earning degrees, whether these be high school, associate, or

baccalaureate degrees. Economically, it is then in each person's interest to strive for a high level of educational attainment.

Even more so, it is also in society's interest—and in the interest of the New England business community specifically—to promote greater "through-put" from the region's high schools into its colleges. This would require increased high school graduation rates followed by greater college participation. College is not necessarily for all— but more participation is required than from among those who now tread this path. The imbalances which are evident in New England's supply and demand of workers have created mismatches between business needs and the skill levels in the available labor pool. Because of such mismatches, the costs of highly educated workers are higher than they would be if New England schools were providing more highly educated workers to the labor market.

The absence of data specific to New England preclude exact duplication with regional data of the educational categories shown in Figure 1. However, Table 1 shows a consistent set of regional wage and salary earnings over time for "full-time" employees in New England. These earnings have increased more in absolute dollars since 1979 for people with greater educational attainment and less for less educated workers. More importantly, incomes of people with greater educational attainment increased even at greater percentage rates (despite their higher base salaries) than did incomes of people with less education.

Table 1: Median Annual Wage and Salary Income -- Full Time Workers by Educational Attainment: New England						
	Salary			Percent Change		
	1979	1989	1991	79-89	89-91	79-91
No HS	\$9,400	\$16,200	\$15,200	72.3%	(6.2)%	61.7%
HS	\$10,000	\$20,000	\$20,000	100.0%	0.0%	100.0%
Some College	\$12,054	\$25,000	\$25,000	107.4%	0.0%	107.4%
College	\$16,000	\$33,909	\$35,000	111.9%	3.2%	118.8%

Table 1 shows, in current dollar values, that workers without high school degrees lost ground in the wake of the 86% inflation between 1979 and 1991. During the recent New England economic downturn (1989-91), these workers, the only group to have suffered both nominal and real income decreases, continued to bear the brunt of the collapse. In contrast, people with four-year college degrees, whose incomes were already well ahead of the incomes of people with less educational attainment, enjoyed the greatest growth in median income between 1979 and 1991. Other workers with intermediate levels of educational attainment, not surprisingly, had intermediate economic success. People with some college saw substantial income gains when the economy was growing, but real losses and no nominal gains during periods of economic contraction.

SUMMARY SECTION 2:

Current Levels of Educational Attainment

The percentage of the population age 25 and over which achieved less than a high school diploma has decreased in each New England state. At the same time, the percentage of the same population with at least some college has increased. But the changes have still not been rapid enough to fuel the regional economy's labor force.

Four factors are primarily responsible:

- people have attained high school degrees at late ages remedying their earlier deficiencies;
- intra-regional migration brings more people completing high school than those not completing it;
- the mortality of older people eliminates a group from the population with lower high school completion rates than the young;
- a reduction of high school attrition has occurred among the young.

All of these changes did not, however, push people continuously up the educational attainment ladder.

In all New England states, there was smaller growth in the populations completing four- year college degrees than in the population attaining some (but less than four years of) college. In other words, the spectacular growth in the rate of college attendance did not translate into similarly spectacular growth rates in completions of four year degrees.

2. Current Levels of Educational Attainment

If Section 1 lays the basis for the need of a more highly educated work force, Table 2 in this section shows impressive net growth in New England educational attainment between 1970 and 1990. Every state in New England had a decreasing percentage of its population 25 and over with less than a high school degree and increasing percentages with at least some college (the highest growth cells in the Table, shaded for emphasis). The context of the preceding section suggests, however, that this has not been rapid enough to fuel the regional economy.

Table 2: Educational Attainment of the Population 25 and Over								
	1970	1980	1990	80-90 Percent Change	1970	1980	1990	80-90 Percent Change
Connecticut					Maine			
No HS	740830	563760	457208	(18.9)	288513	207366	168460	(18.8)
HS	534830	653884	648366	(.8)	188886	259964	295074	13.5
Some Col.	179635	289956	350418	71.0	60424	99226	127799	84.2
Assoc.			145278				54928	
College	230303	392564	597693	52.3	44981	95284	149352	56.7
Massachusetts					New Hampshire			
No HS	1305345	963289	792657	(17.7)	168709	150385	127423	(15.3)
HS	1096249	1260868	1178509	(6.5)	136982	201416	226267	12.3
Some Col.	346399	545469	624944	67.2	48837	91468	128695	103.6
Assoc.			287114				57568	
College	394470	693630	1078999	55.6	43153	98684	173941	76.3
Rhode Island					Vermont			
No HS	281089	223949	184344	(17.7)	99897	85509	68637	(19.7)
HS	151919	188488	194064	3.0	76675	107297	123430	15.0
Some Col.	41875	74038	99092	89.6	29346	46061	52594	70.0
Assoc.			41296				25730	
College	49199	88768	140160	57.9	26725	56184	86854	54.6

Decreases in the percentage of the population obtaining less than a high school degree (shown in Table 2) were caused by the rapid departure of non-completers of high school compared with the much slower arrival of persons in this group. Four factors are primarily responsible: people have attained high school degrees at late ages remedying their earlier deficiencies; intra-regional migration brings more people completing high school than those not completing it; the mortality of older people eliminates a group from the population with lower high school completion rates than the young; and a reduction of high school attrition has occurred among the young. All of these changes did not, however, push people continuously up the educational attainment ladder. Throughout the region, growth rates took on the same pattern: a) significant declines of persons without high school degrees, either smaller losses or some small gains of those only completing high school but not going on to college, and larger gains for the group attending college. However, in all New England states, there was smaller growth in the population completing 4 year college degrees than in the population attaining some (but less than 4 years of) college. The spectacular growth in the rate of college attendance did not translate into similarly spectacular growth rates in completions of four year degrees. Only in Vermont and Massachusetts did the college-trained population increase at

rates near that of the growth in the population with some college. (Unfortunately, the 1980 Census questionnaire was asked in such a way that comparisons cannot be made for populations with associates degrees—which Figure 1 showed to be an important step over some college without a degree.)

SUMMARY SECTION 3:

Review of the Educational System's Performance in Retention and Participation

In the 1980s, 29.9% of the total growth in college completions in New England was accounted for by the sheer growth in population and the balance, 70.1% of the total growth, was accounted for by improvements in educational rates of completion and participation. While this educational improvement is impressive, it is not nearly as impressive as achievements in educational improvement accomplished in the 1970s.

There was greater percentage growth in four-year college degree attainment during the 1970s than during the 1980s. Between 1980 and 1990, the slower growth was responsible for retarding the increase in the number of people with four-year college degrees. By 1990, the number of people with four year degrees or more barely surpassed the number of people without high school degrees. In a technologically advanced economy, this is probably inadequate to support the labor force needs of a growing economy.

During the 1980s, there were declines across all of the New England states in the rate at which students completed college once having started it. Therefore, the greater population growth in the 1980s compared to the 1990s was transformed into smaller growth in the amount of four-year college completions. This, in turn, is correlated with measurable weaker growth (or actual decline) in educational completion and participation rates.



3. *Review of the Educational System's Performance in Retention and Participation*

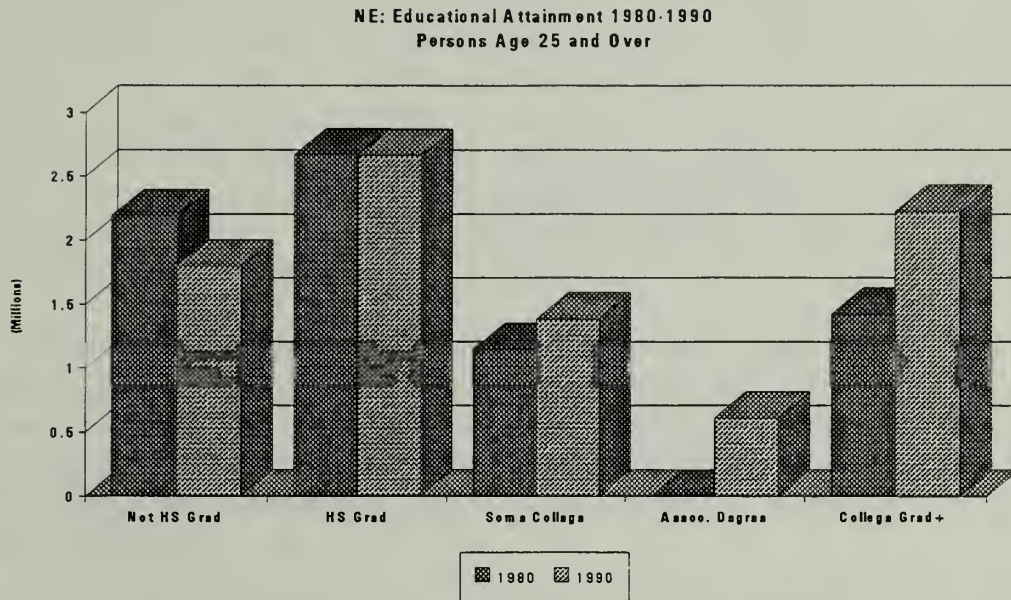


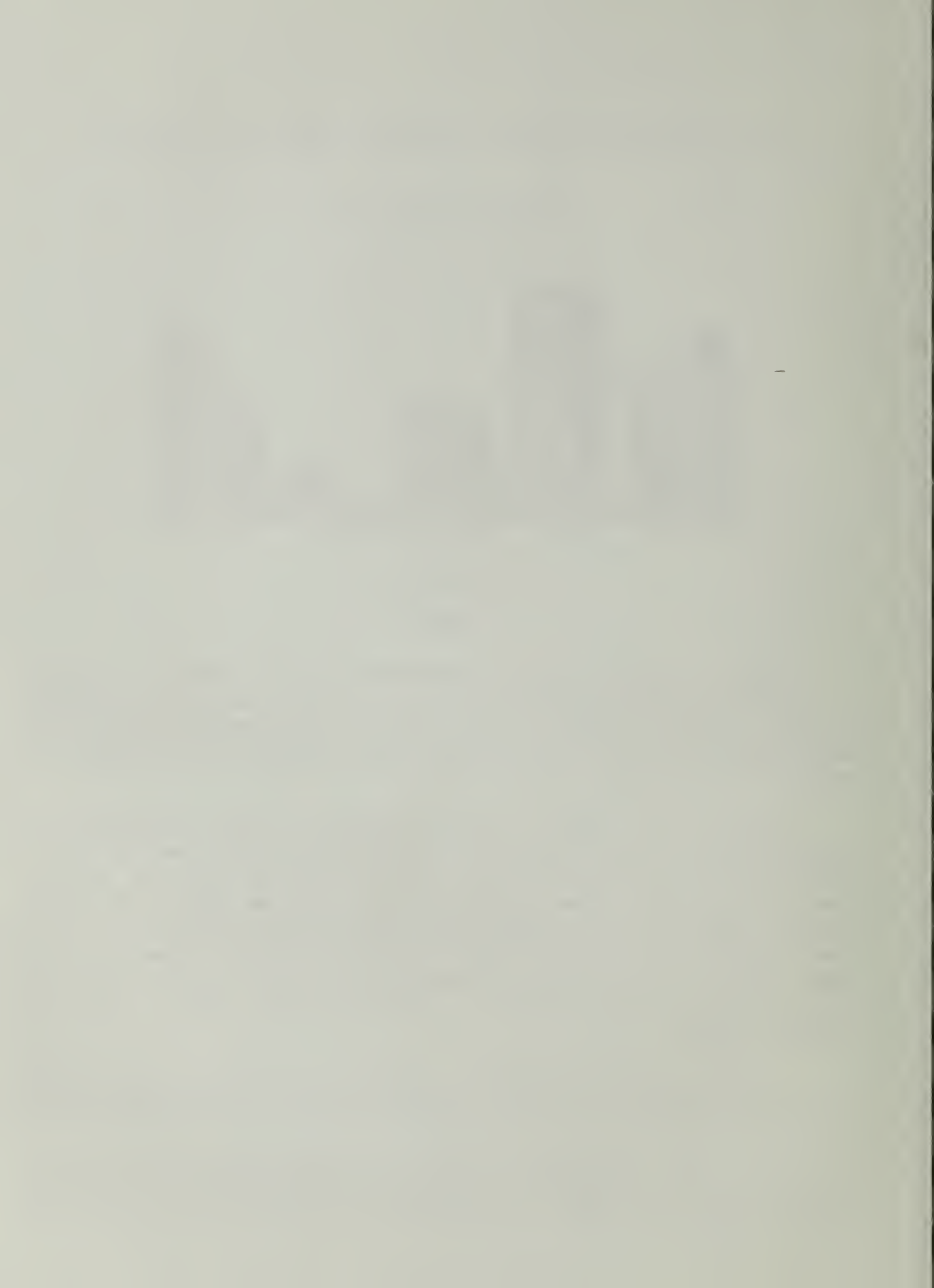
Figure 2

Despite the generally increasing educational attainment shown in Table 2, the absolute levels of educational attainment are still surprisingly low. Figure 2 shows that even by 1990, the number of people with four-year college degrees barely surpassed the number of people without high school degrees. In a technologically advanced economy, this is inadequate to support the labor force needs of a growing economy.

To see how these conditions might be changed, it is useful to understand how attainment patterns have changed in the past. In this spirit, data on the growth rates of four-year college completions has been "decomposed" into its component parts. This shows the growth rate in four-year college completions attributable to (a) the growth in the regional population, (b) growth in the rate of student progression through high school to graduation, (c) growth in rates of college participation, and (d) growth in the rate of student progression through college to college graduation.¹ This analysis shows which of the contributing factors have been most important, historically, in generating specific changes in educational attainment over time.

Decomposition allows us to develop a perspective on the four individual component rates and their relationships to each other. That is, such analysis can answer questions about

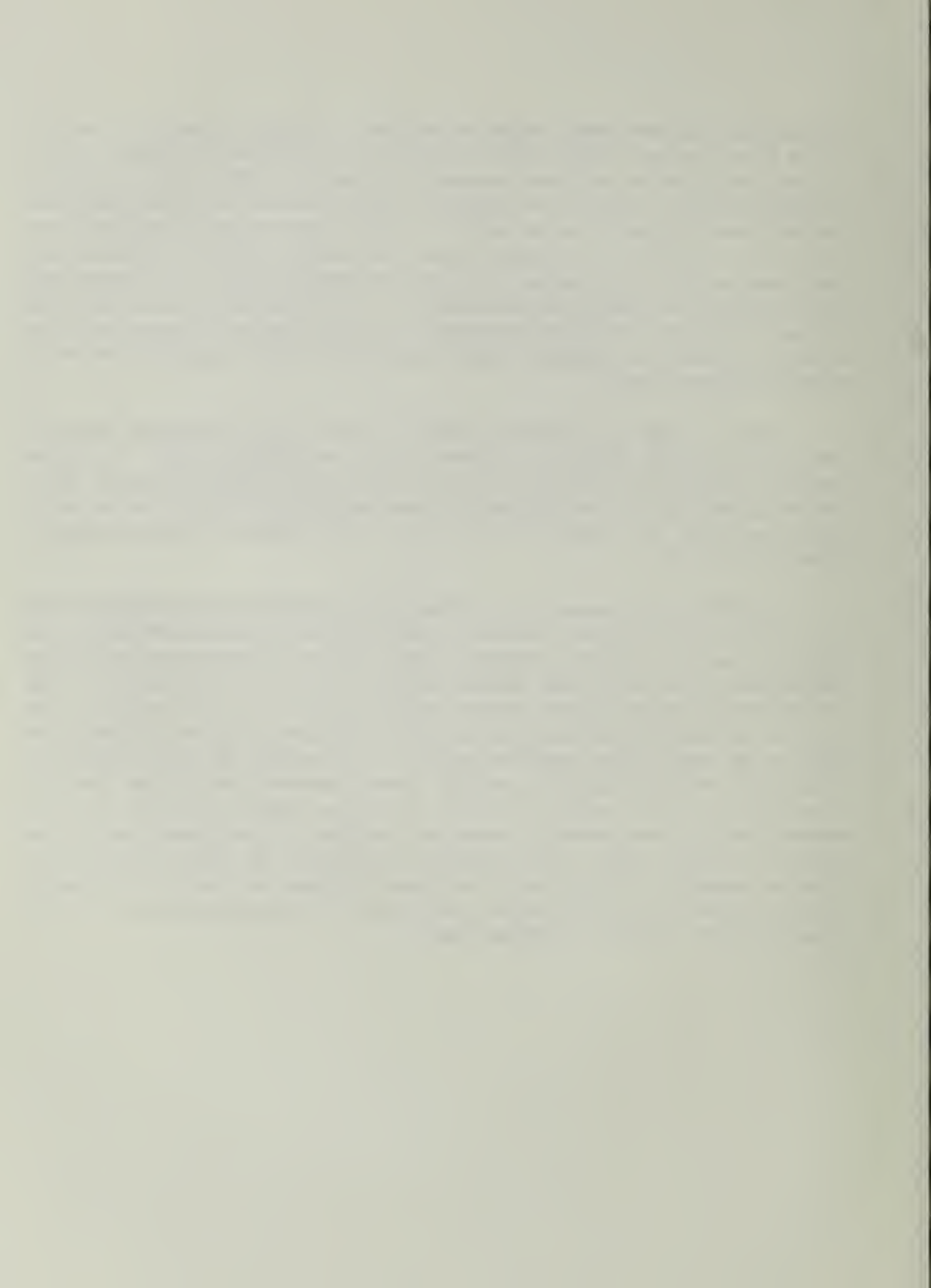
¹There is also a fifth component, a residual, which represents the combined effect of more than one of the first four components changing at the same time in reasonably large steps. It also represents, mathematically, the difference between the total growth of four year degrees and the sum of the growth of the separate components, hence it is called a residual.



why growth in four year college completions occurred. The analysis suggests, for example, that the increase between 1980 and 1990 of 16.8% in the New England population aged 25-years and over should by itself have accounted for an identical 16.8% growth in the college completing population if high school graduation, college entrance, and college completion rates had remained constant over the period. Yet, the college completing population grew much more — by 56.27% . The difference between these numbers is due to the growth in the rate at which of high school graduates go on to attend college as well as the growth in their rate of graduation from college once participating in it. These rates, of course, did not remain constant. The numbers generated by decomposition analysis reflect how important each of the various factors relating to growth in college completions have been, identifying those factors needing most urgent attention.

Figures 3A and 3B summarize changes in New England's educational attainment between 1970 and 1980 (Figure 3A) and between 1980 and 1990 (Figure 3B). The figures show that there was greater growth in four-year college degree attainment during the 1970's than during the 1980's. Notwithstanding the greater increases in the Northern tier states, the higher growth in the 1970's can be seen in the relative size of columns in Figure 3A compared to those in Figure 3B.

The effect of improvements in the various rates of completion and participation on the growth in the college completing population is clearly different in comparing the changes that occurred across the two decades. During the 1980's, there were declines across all of the New England states in the rate at which students completed college once having started it. This rate, by contrast, had grown slowly for every state during the 1970s. We might interpret this as a squandering of the opportunity to increase further educational attainment presented in the 1980's by the decade's larger population growth. In the southern tier states, Connecticut, Massachusetts and Rhode Island, in particular, greater population growth in the 1980s was transformed into smaller growth in the amount of four-year college completions because of weaker growth (or actual decline) in educational completion and participation rates. In the northern tier states of Maine, New Hampshire and Vermont, the slightly smaller 1980's growth in population (still higher than in the southern tier states) was transformed consistently with their southern neighbors into smaller 1980's growth in four-year completions, a result of weakening growth in education achievement rates.



**NE: Components of Growth 1970-1980
in 4-Year College Completing Population**

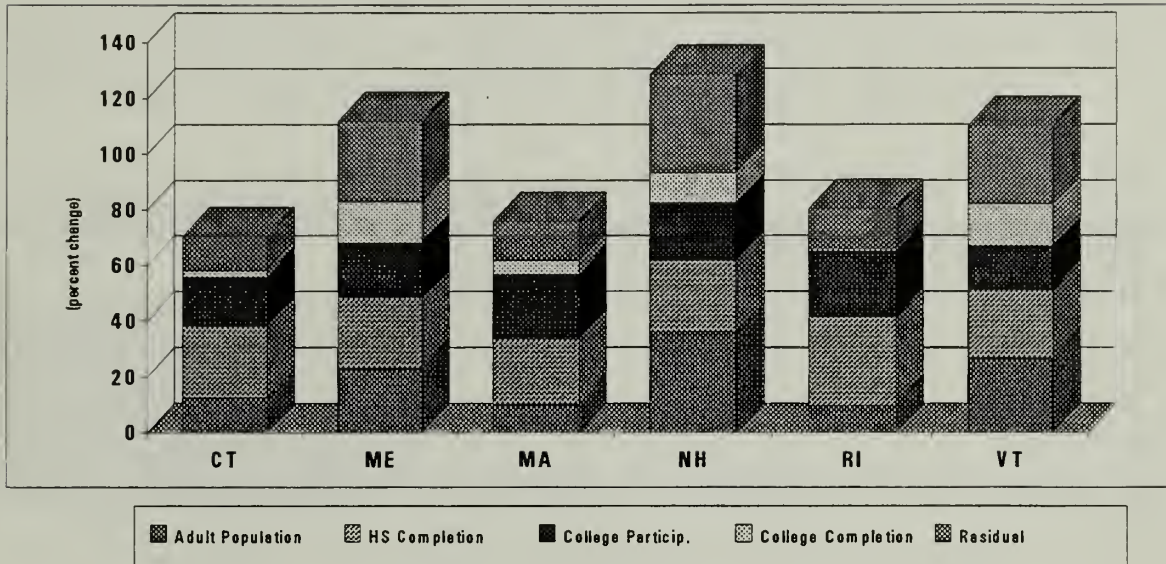


Figure 3A

**NE: Components of Growth 1980-1990
in 4-Year College Completing Population**

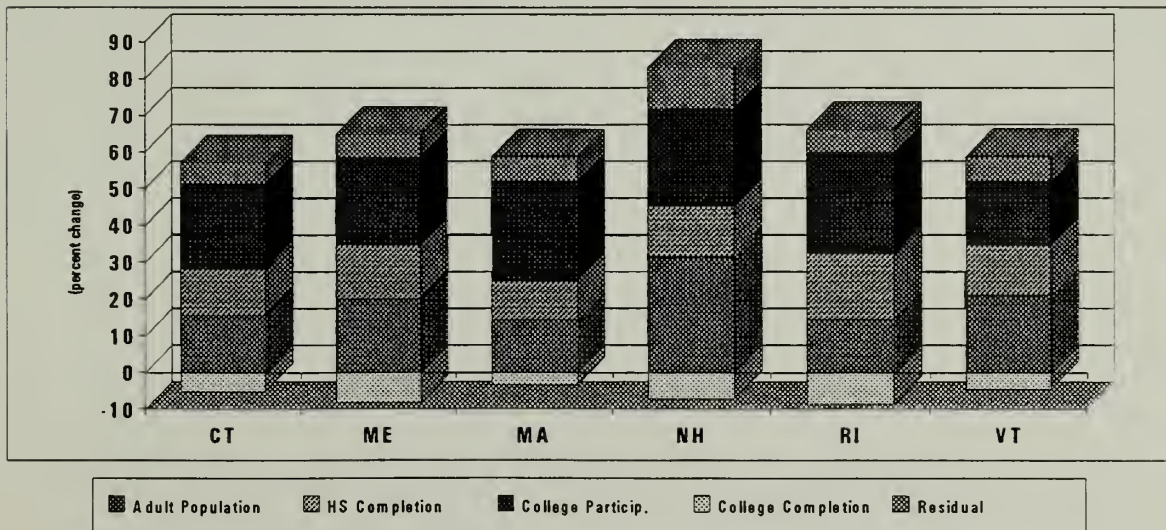


Figure 3B

Figure 1

Figure 1 shows the distribution of the number of children in the household.

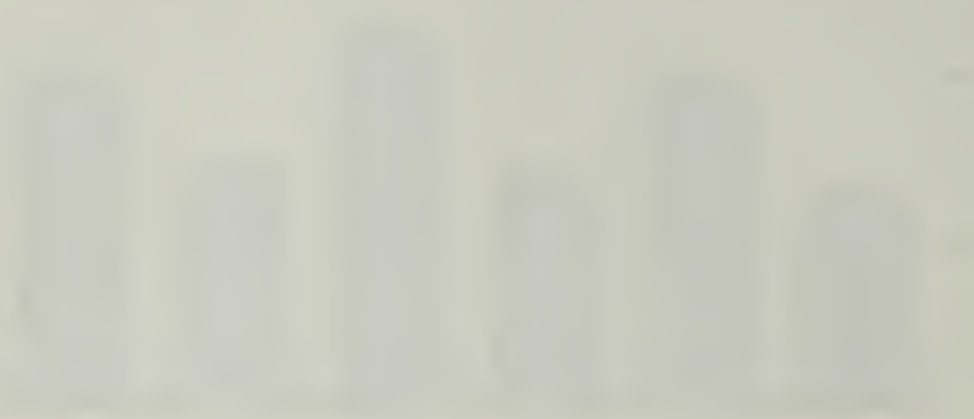
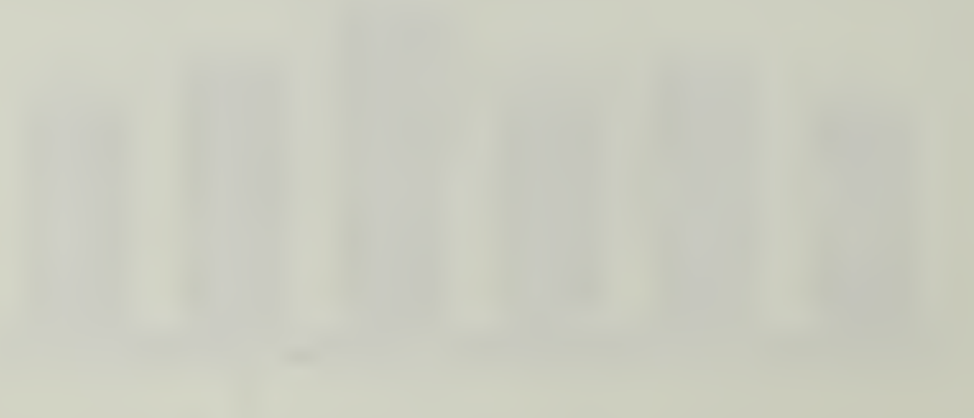


Figure 2

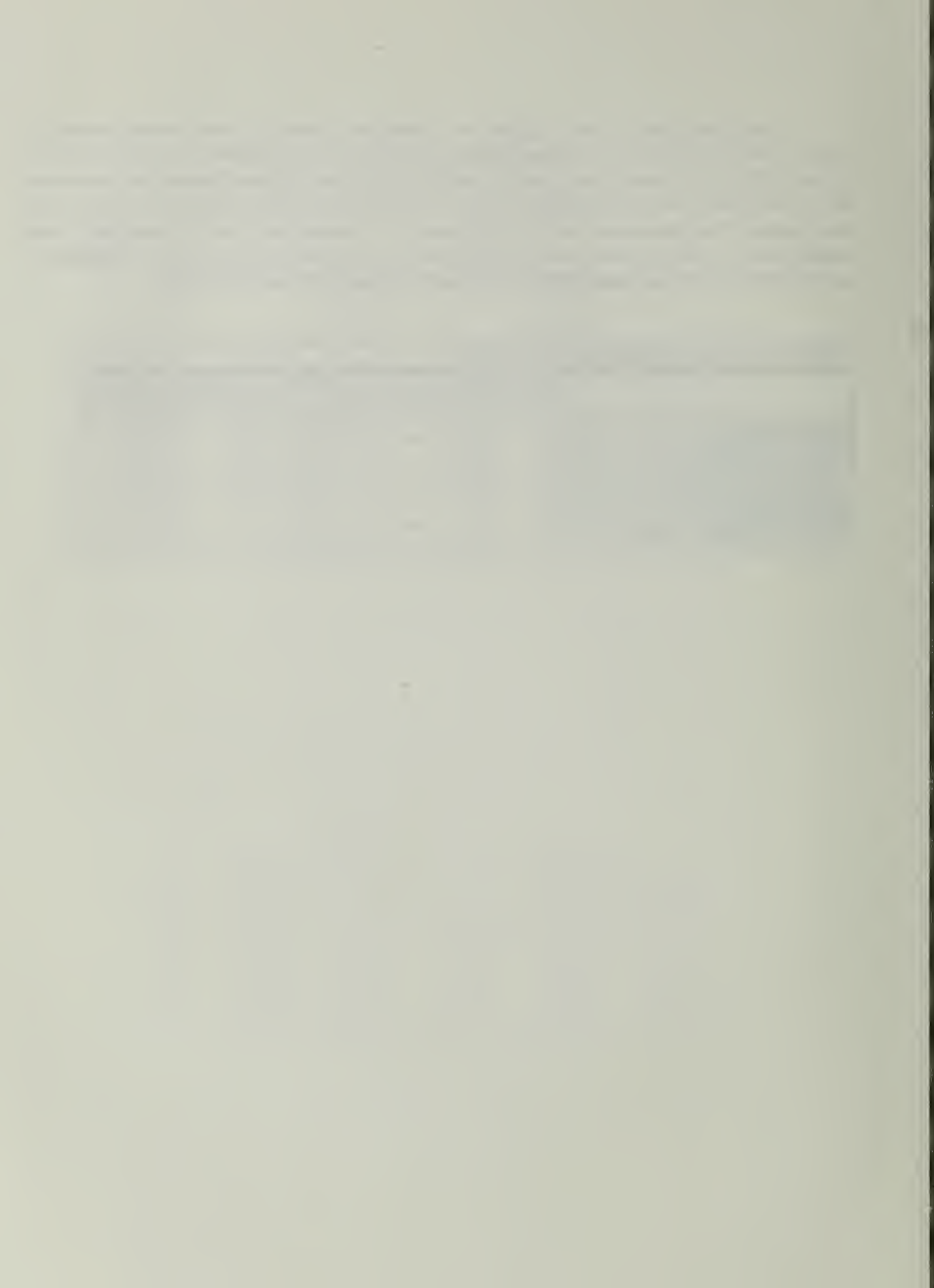
Figure 2 shows the distribution of the number of children in the household.



Source: Author's calculations based on the 2000 Census of the United States.

Comparable data for New England as a whole are shown in Table 3 which provides a detailed overview of four-year college degree completions, their components and their volume. In the 1980s, 29.9% of the total growth in college completions in New England was accounted for by the sheer growth in population ($.299 = 16.80/56.27$) and the balance, 70.1% of the total growth, was accounted for by improvements in educational rates of completion and participation. While this educational improvement is impressive, it is not nearly as impressive as achievements in educational improvement accomplished in the earlier decade.

Table 3: New England Education Achievement Rates			
	1980	1990	Percent Change 80-90
Total Population	7,437,507	8,686,894	16.80
HS Completion Rate	70.5	79.3	12.48
College Attendance Rate	49.0	61.3	25.00
College Completion Rate	55.4	52.7	(4.84)
Residual (interactions)	---	---	6.83
Four-year College Completions	1,425,114	2,226,999	56.27



SUMMARY SECTION 4:

Performance in Schools:

Differences in Growth in Completion and Attendance Rates by Race and Ethnicity

New England's growth in all racial and ethnic minority categories nearly doubles the United States' growth. This is particularly noticeable among blacks and Hispanics.

The major variations in college completion rates among the six New England states are not large in comparison to the more significant variations that occur among racial and ethnic groupings and among towns and cities, even within a single state.

College completion rates (the percentage of those who started college that completed four year degrees) in New England between 1980 and 1990:

- All persons = 53% (down by 4.84% from the previous rate)
- Hispanic = 43% (down by 13.92% from the previous rate)
- Black = 39% (down by 8.93% from the previous rate)
- White = 53% (down by 4.90% from the previous rate)
- American Indian,
Eskimo, Aleutian = 33% (down by 13.93% from the previous rate)
- Asian & Pacific
Islander = 74% (down by 3.74% from the previous rate)
- Other Races = 32% (down by 13.92% from the previous rate)

These figures suggest that the motivation expressed in seeking higher education (participation) is not matched for the minority populations by their degree attainment rates. The difference implies the need to improve campus racial climates, remediation programs and other outreach designed to level opportunities for success.



4. *Performance in Schools: Differences in Growth in Completion and Attendance Rates by Race and Ethnicity*

The major variations among States in Figure 3 are not large in comparison to the variations that occurs among racial and ethnic groupings and among towns and cities, even within a single state. Table 4 shows aggregate New England achievement rates by race and ethnicity.

Table 4: New England Educational Achievement Rates by Race and Ethnicity, 1990					
	Population Over Age 25	HS Completion Rate	College Part. Rate	College Comp. Rate	College Completion
All Persons	8,686,894	.79	.61	.53	2,226,999
Growth, '80-'90	16.80	12.48	25.00	(4.84)	56.27
White	8,070,105	.80	.61	.53	2,107,730
Growth, '80-'90	13.84	12.81	24.54	(4.90)	52.10
Black	345,021	.69	.56	.39	51,171
Growth, '80-'90	49.23	12.97	39.14	(8.93)	113.64
A. Ind., Esk., Aleu.	20,191	.69	.54	.33	2,478
Growth, '80-'90	65.50	16.47	18.64	(13.93)	96.82
Asian & Pac. Isl.	124,730	.75	.80	.74	56,027
Growth, '80-'90	157.14	1.57	9.69	(3.74)	175.75
Other Races	126,847	.47	.50	.32	9,593
Hispanic Ethnicity	261,350	.53	.57	.43	34,337
Growth, '80-'90	105.00	21.25	19.04	(13.92)	154.71

The significant variation illustrated in the race and ethnicity figures above, is much greater than the variation of the "all persons" rates of Table 3 when displayed across states. Table 4 shows how much lower the high school completion rates for the Hispanic and "other race" populations are, for example, than for black, Asian and American Indian populations. Table 4 also shows a notably higher rate of college participation (given high school graduation), and a superlative college completion rate for Asians compared to other populations. College completion rates of blacks, American Indians, Hispanics and people of "other races," hover between 33% and 40%, compared to rates of over 50% completion for whites, and 75% for Asians.

Deficiencies in completion rates for racial and ethnic minorities are serious when one considers that New England's growth in population over 25, slower overall than the U.S., was concentrated in the minority populations. New England's total growth trailed the U.S.'s 16.8% to 18.9% during the decade. Its growth in the white population lagged by 13.8% to 16.1%. However, in all racial and ethnic minority categories, New England exceeded U.S. growth. New England's growth nearly doubles the U.S.'s growth particularly among blacks and Hispanics.



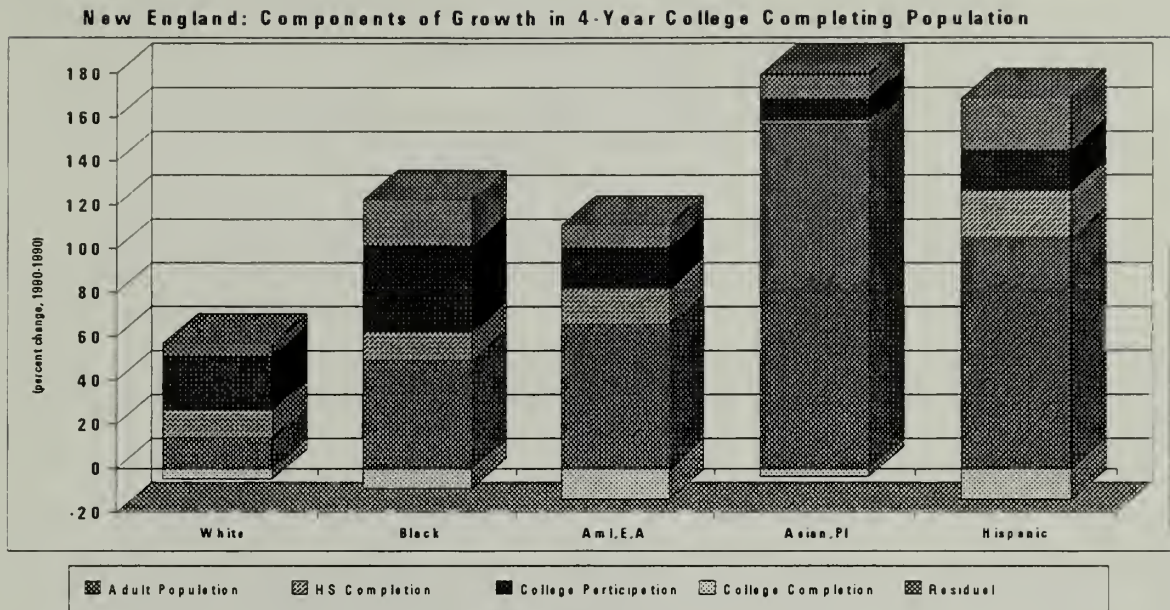


Figure 4

The growth in educational completion and participation rates of the New England population by race and ethnicity is shown in Figure 4. This data shows significant differences between the white and minority populations in factors contributing to educational achievement rates. About 75% of the increase in degree attainment in the white population is due to improvements in the educational system (such as increases in retention and participation). Only 25% is due to population growth. In contrast, for example, nearly 50% of the growth in four-year college completions for the black population is due to population growth—the other half results from educational improvements. Two thirds of the growth in degree attainment for American Indians and Hispanics was due to population growth. Much smaller balances of the increased completions for these populations are due to improvements in educational performance.

The results shown in Table 4 and Figure 4 reflect the way that educational inequalities play out for minorities. The results are consistent with the rapidly increasing participation in higher education of these groups without sufficient support for their success. The motivation expressed in seeking higher education is not matched for the minority populations by their degree attainment rates. Once minority students have ventured into pursuing further education, they must be given sufficient support that they will continue to graduation. This will require improving campus racial climates, culturally sensitive counseling, etc.



SUMMARY SECTION 5:

The Growing Importance of Minority Populations in New England Will Continue to Grow

Projections based on all of the available data indicate that the percentage of minorities living in New England and coming into the work force will increase dramatically over the near term future.

There are three reasons why minority populations entering the labor force in New England have grown significantly faster than the white, non-Hispanic populations:

- (1) minority population is younger than the white, non-Hispanic population and therefore has greater percentages yet to enter the labor force;
- (2) greater minority percentages in the fertile age ranges coupled with greater fertility rates imply more minority births which translate later into greater increases in the labor force;
- (3) the minority population has higher, positive in-migration rates than the white, non-Hispanic population, and thus increases the minority share in the future labor force.

The Hispanic population is much more heavily represented by younger populations than by other ages; 50% of the Hispanic population is under 25 years of age, compared to 45% for blacks and Asians, and only 30% for whites. Minority populations also have higher in-migration rates, while the white population shows negative out-migration.



5. The Growing Importance of Minority Populations in New England will Continue to Grow

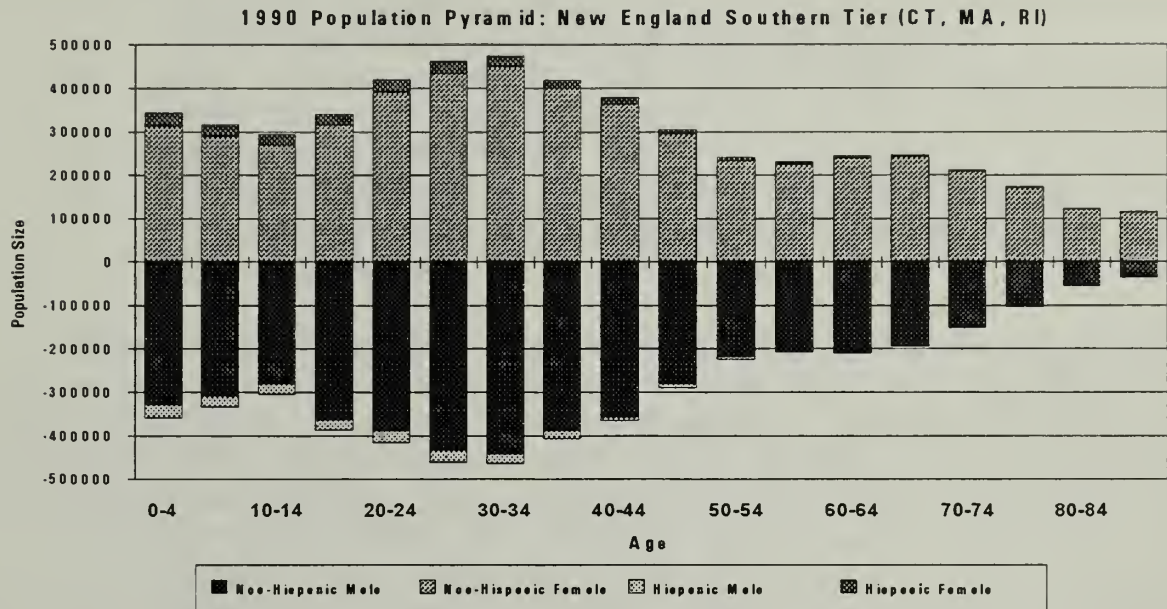


Figure 5A

The growth in populations completing four-year degrees is particularly dependent upon minority populations. These populations in New England have recently grown significantly faster than the white, non-Hispanic majority population. It is therefore important to focus on the increase of minority populations. The character and geographic breakout of minority growth will have significant impact on the region's future educational and labor performance.

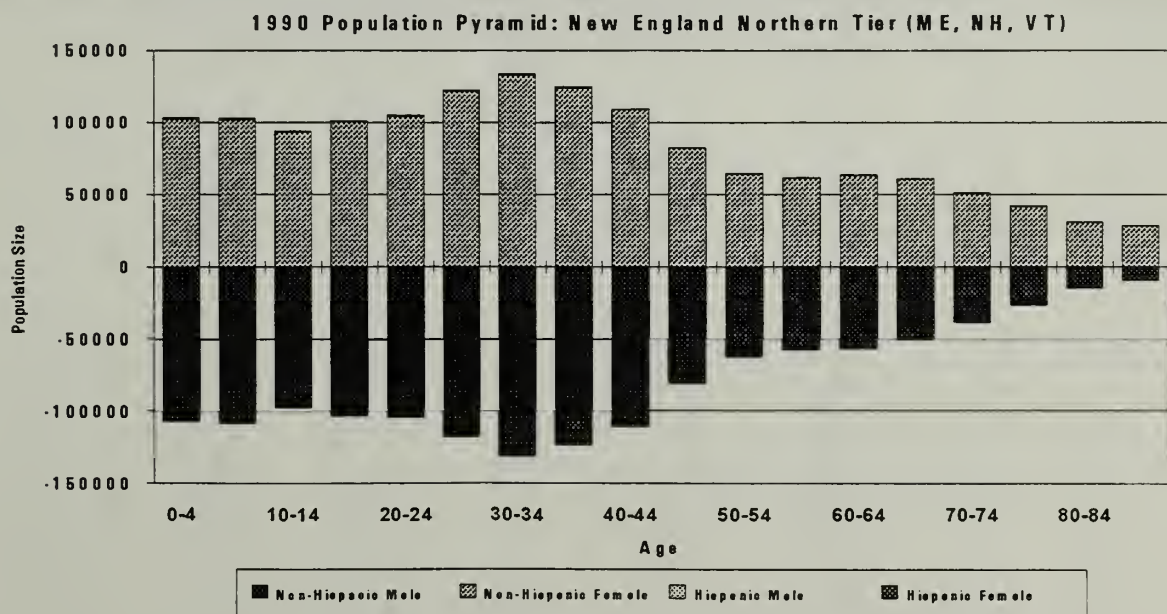
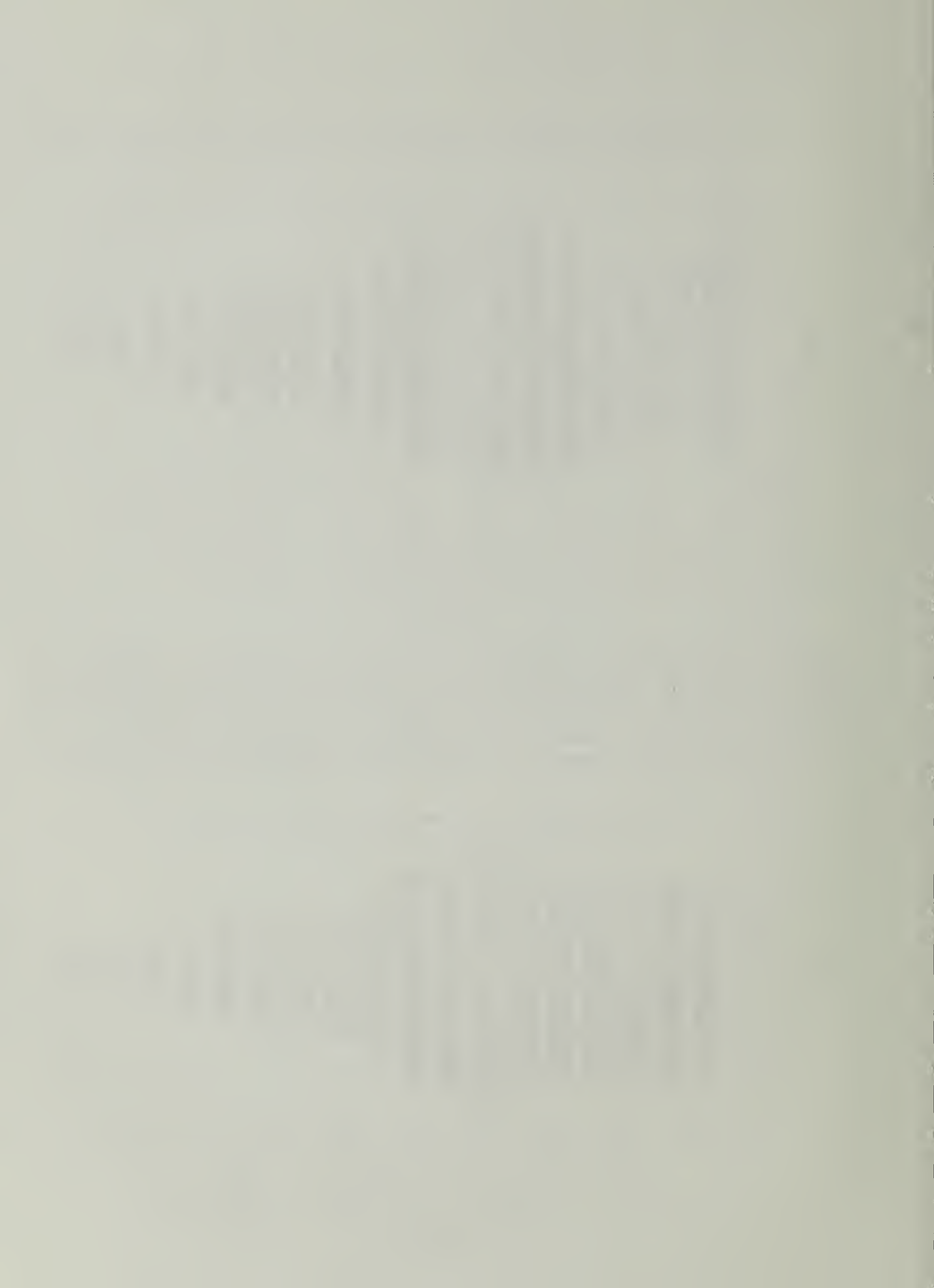


Figure 5B



There are three reasons why minority populations entering the labor force in New England have grown faster than the white populations. These are that:

- (1) the minority population is younger than the white, non-Hispanic population and it therefore has greater percentages yet to enter the labor force;
- (2) greater minority percentages in the fertile age ranges coupled with greater fertility rates imply more minority births and these, in turn, translate later into increases in the labor force; and
- (3) the minority population has higher, positive in-migration rates than the white, non-Hispanic population and this too increases later growth in the minority share in the labor force.

Younger Minority Ages In looking at likely future growth, data show the significantly younger average age of the minority population as compared with the white population. This can be seen in Figures 5A and 5B, which show population pyramids for Southern New England (Connecticut, Massachusetts and Rhode Island) and Northern New England (Maine, New Hampshire and Vermont). The southern tier has a larger minority population than the northern tier in absolute and relative terms. Both tiers, however, show the "baby boom" bulge for the whole population of age groups ranging from 20 through 44. The greater minority population of Hispanics in the southern tier of New England can be seen in the separation of Hispanic and non-Hispanic populations in Figures 5A and 5B.

Table 5 shows that the proportion of Hispanic persons and people of "other races" in the total population is nearly 15 times as great in younger age groups than in the older age groups. The same trend is clear, albeit to a lesser degree, for blacks, American Indians and Asians.

Table 5: Age Distribution of Minority Populations in New England: 1990

Age	Total Population	Percent Female	Percent Hispanic	Percent Black	Percent Am. Ind.	Percent Asian	Percent Other
0-4	916,586	48.75	7.00	6.66	0.29	2.17	3.75
5-9	865,305	48.49	6.63	6.18	0.33	2.31	3.61
10-14	794,657	49.02	6.57	6.25	0.34	2.01	3.59
15-19	935,545	47.23	5.44	5.74	0.30	2.26	2.94
20-24	1,048,385	50.12	5.70	5.75	0.34	2.34	3.02
25-29	1,167,961	50.24	5.19	5.44	0.28	2.23	2.66
30-34	1,207,745	50.49	4.25	4.94	0.30	2.03	2.15
35-39	1,075,999	50.56	3.73	4.45	0.28	1.93	1.81
40-44	966,879	50.53	2.65	4.14	0.26	1.66	1.57
45-49	761,398	50.97	2.92	4.11	0.25	1.40	1.37
50-54	596,074	51.36	2.74	4.39	0.23	1.34	1.26
55-59	561,855	52.13	2.22	3.61	0.22	1.07	0.98
60-64	578,348	53.25	1.59	3.00	0.14	0.74	0.74
65-69	556,163	55.34	1.20	2.72	0.15	0.63	0.57
70-74	453,657	57.84	0.99	2.15	0.14	0.51	0.45
75-79	346,012	62.36	0.87	1.87	0.13	0.39	0.40
80-84	225,877	68.14	0.73	1.79	0.15	0.36	0.32
85+	189,202	75.56	0.61	1.72	0.11	0.26	0.22

Figure 6 gives the cumulative percentage by age of the populations in each of the largest racial and ethnic groups in New England. This percentage for any given group would appear on the graph as a straight diagonal line—if the population were uniformly distributed by age. When the population is distributed more heavily toward the lower age groups, the line representing the group's cumulative percentage bows upward, above the diagonal. The greater the percentage of young in the racial or ethnic group, the more the line bows upward. Figure 6 clearly shows that the Hispanic population is much more heavily represented by younger populations than by other ages. These data represent that more than 50% of the Hispanic population is under 25 years of age, compared to 45% for blacks and Asians. Only a little more than 30% of the white population is under 25. This data then show that a relatively high percentage of the Hispanic population has yet to enter the labor force. The percentages of the population yet to enter the labor force are smaller for the Asian and Black populations. They are least for the white population.

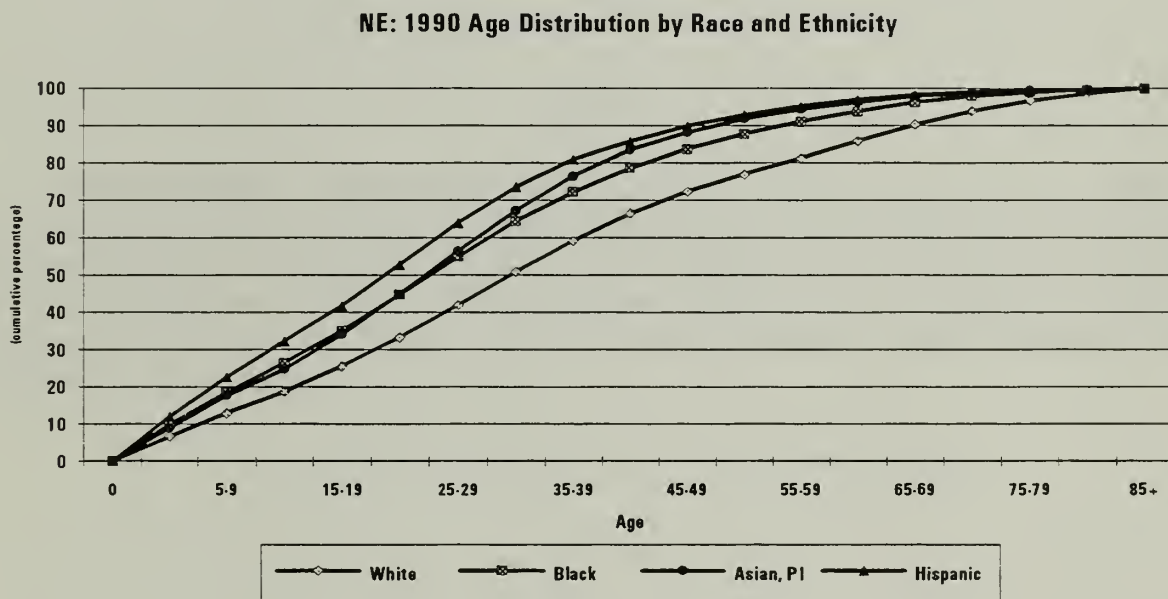
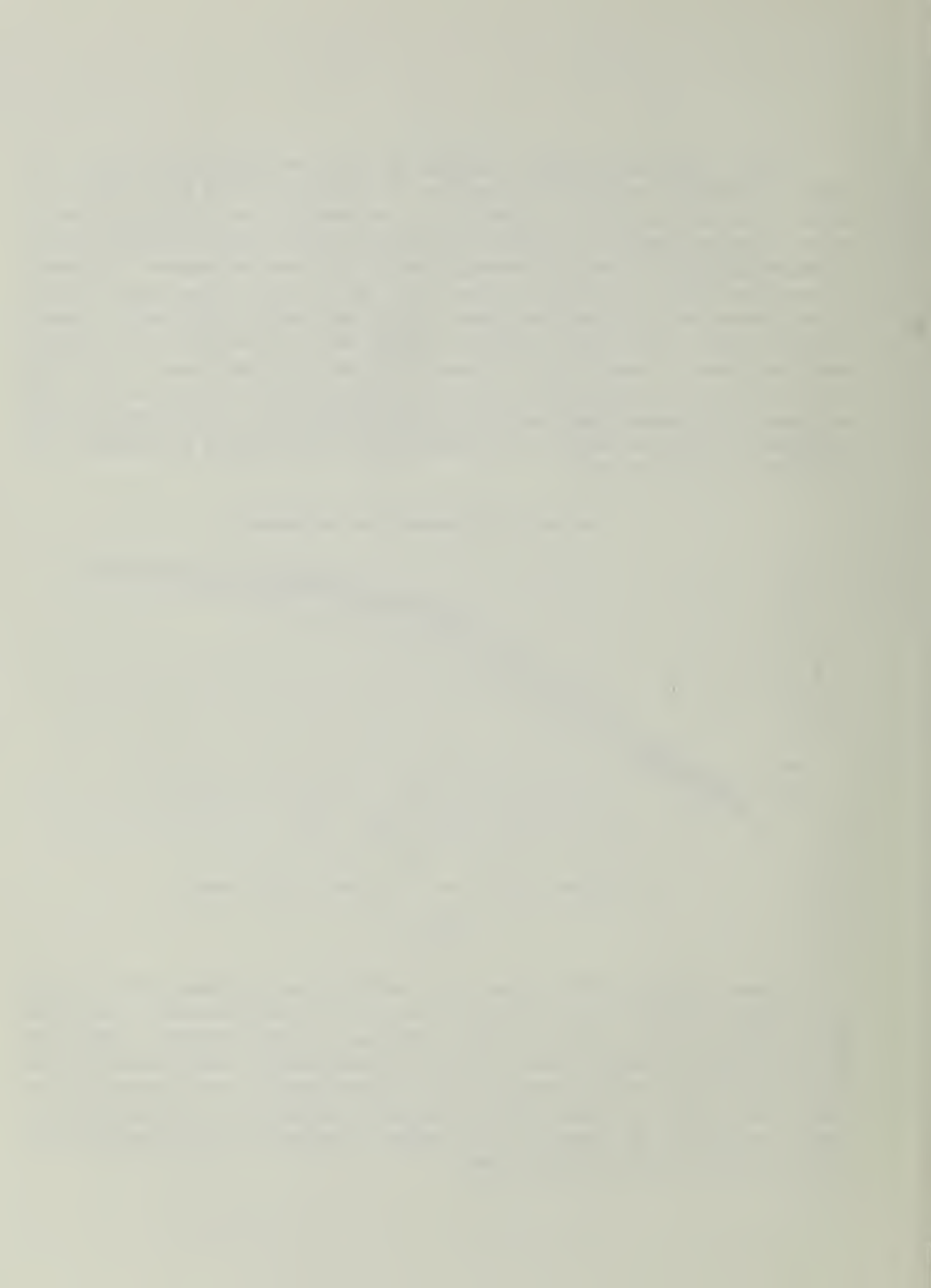


Figure 6

Greater Minority Births Higher births result from the combination of the younger age of minority populations and their higher birth rates, increasing the minority share of the total population. Figure 7 shows comparative birth rates by race and ethnicity. These show that young black and Hispanic women fertility rates exceed those for whites, and further that Hispanic women have far more children in their lifetimes than do women in other racial or ethnic groups. For every thousand women within a racial or ethnic group, over their lifetimes, Hispanic women have an average of 2,749 children, compared to 2,253 children for black women, and 2,012 children for white women.



NE: Completed Fertility Rate by Age and by Race and Ethnicity 1990

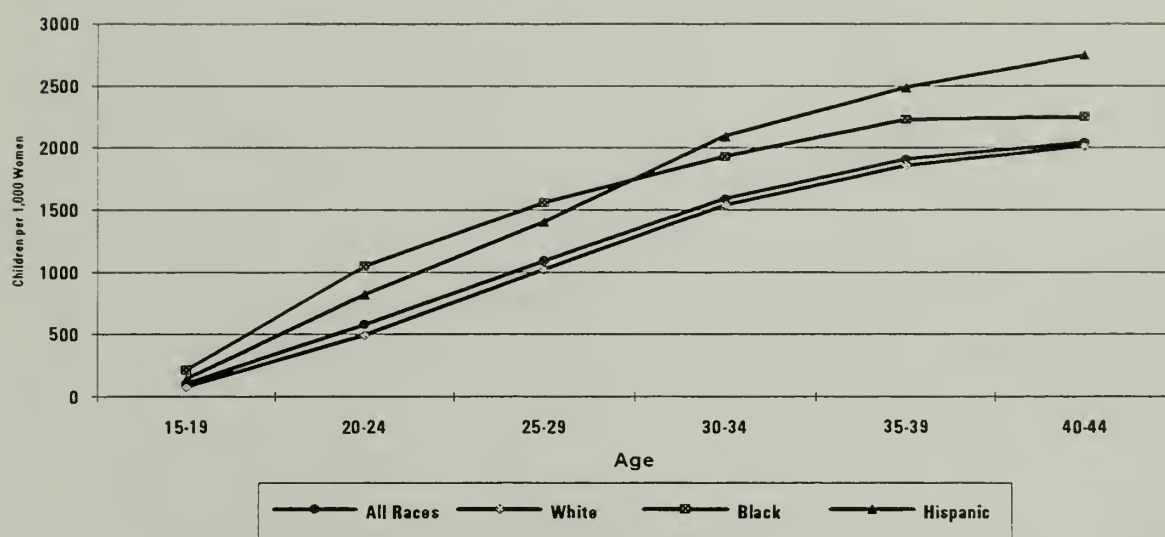


Figure 7

Higher Minority Immigration Rates Minority populations also have higher in-migration rates shown in Figures 8A and 8B (adequate data is available only for Connecticut and Massachusetts).¹ Figures 8A and 8B show the highest rates of in-migration for Hispanic and Asian populations, mixed in- and out-migration rates for the black population (generally tending to be higher in the later part of the decade), and negative rates representing out-migration rates for whites.

CT: Historical Yearly Migration Rates of School-Aged Children (3-yr. avg.)

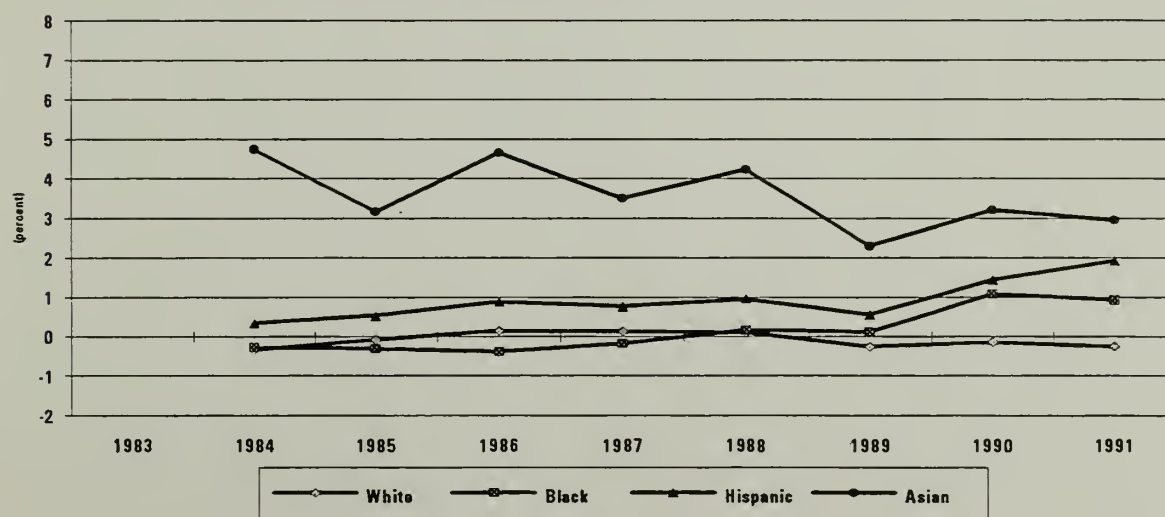
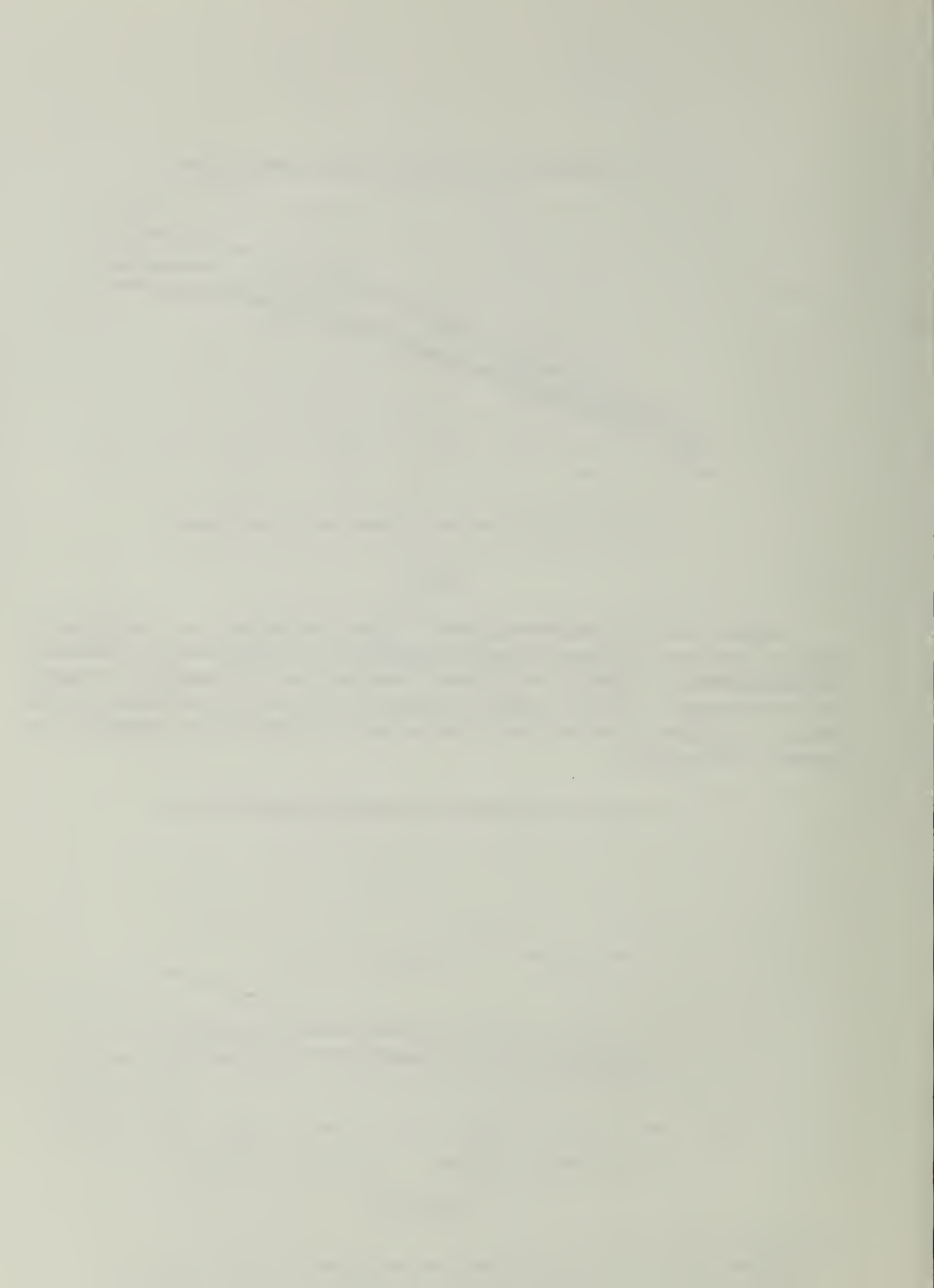


Figure 8A

¹ In-migration is represented by positive migration rates; out-migration, by negative migration rates.



MA: Historical Yearly Migration Rates of School-Aged Children (3-yr.avg.)

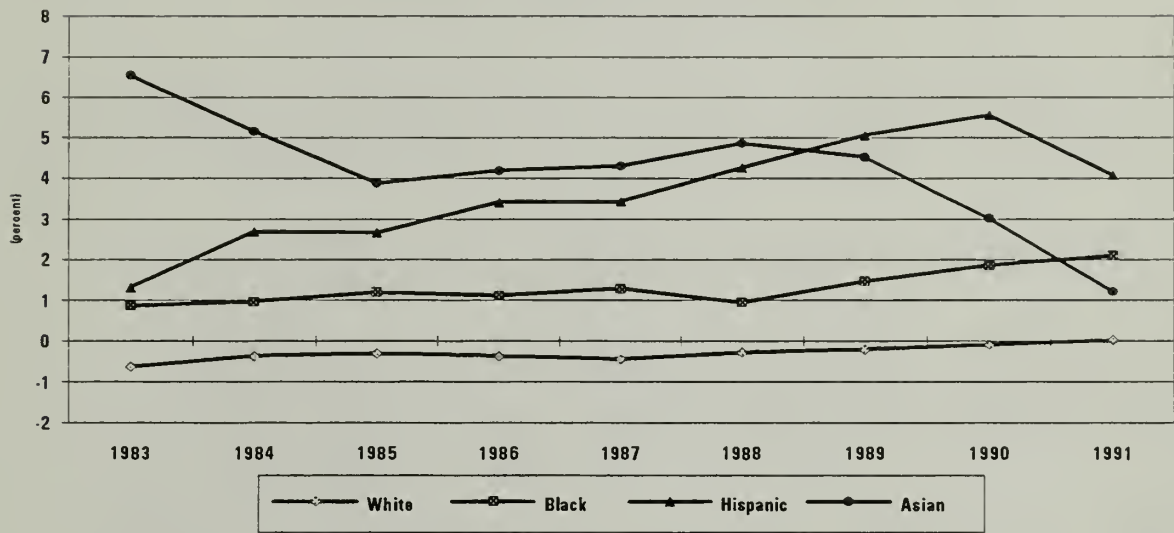


Figure 8B

Collectively, a younger population yet to enter the workforce, higher fertility deriving from greater fertility rates, more of the population in the fertile age range, and greater immigration rates cause the minority populations about to enter the work force to be larger than the comparable white population. Projections based on all of the available data indicate that the percentage of minorities living in New England and coming into the work force will increase dramatically over the near term future.



SUMMARY SECTION 6:

Clustering of Educational Attainment Among Communities: Factors Other than Race and Ethnicity that Affect School Completions

The variables affecting educational attainment have less correlation with the minority status of a community than with its income. This provides some rationale for the notion that educational attainment is less a product of race and ethnicity than of income and class.

- Only 3.59% of the variation in educational attainment is explained by data on the racial and ethnic composition of a community;
- INCOME coupled with race and ethnicity explained 42.77% of the variation across the region in four year degree completions by residents. At the state level, three of the six New England states had more than 60% of the variation in their communities' college completions explained when income was added to race and ethnicity.

Language is also an important barrier to learning and progressing through school that is related to race and ethnicity, especially for those Hispanic and Asian households where no adults speak English at home (termed: linguistic isolation).

- 26% of Hispanics are linguistically isolated;
- 30% of Asians are linguistically isolated.

Another factor widely acknowledged to influence educational attainment and not necessarily related to race and ethnicity, is teen age pregnancy and the attendant issues related to single mothers.

- The total numbers of births to young mothers are highest in Massachusetts and Connecticut because of the larger populations in these states.
- The highest rate per thousand women between ages of 15 and 24 occurs in Maine and Vermont. High fertility rates at young ages is therefore not associated only with minority populations; there are comparatively few minorities in Northern New England.

Most significant is that in every New England state more than 25% (in some states nearly 50%) of births to women in this age group are to women who were not married and who still were unmarried as of the 1990 Census. As a result, many of these women face issues such as school attrition, poverty, and certain needs for day care facilities.

- In Massachusetts, calculations show that 30.4% of all unmarried women in the age range of 20-24 who became mothers as teenagers fail to complete high school and then later do not earn equivalent degrees. In comparison, only 9.4% of unmarried women who were not teenage mothers failed to get high school degrees or equivalent.

Clearly, without dealing with issues attendant with teenage pregnancy, motherhood and day care, a significant root cause of low school attainment will continue unabated.



6. Clustering of Educational Attainment Among Communities: Factors Other than Race and Ethnicity that Affect School Completions

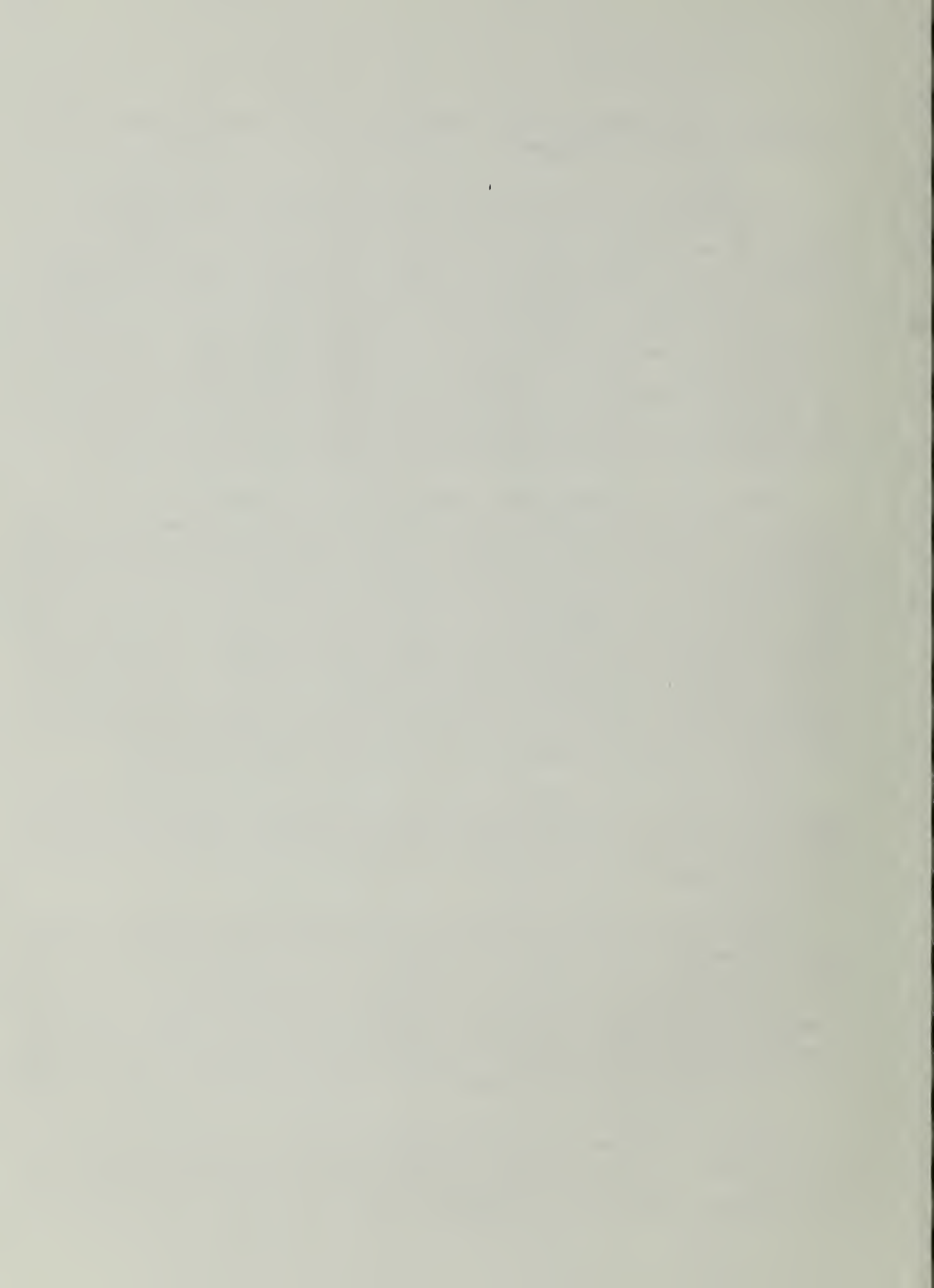
Clear differences in educational outcomes exist by race and ethnicity. However, the huge geographical variations in the percent of the population with four-year college degrees (Figure 9) are not attributable merely to differences in race and ethnicity among communities. Communities in New England are open — subject to significant amounts of in- and out-migration. As people move, they bring with them their own store of education. This makes quite a difference to their community's labor force preparedness. However, such movement of population among communities is the last thing to be relied upon to bring a transformation of the New England work force. If we relied on the natural forces of population movement, our planning will be insufficient and sections of New England would be forever resigned to second class status because population movement is disequilibrating. Places that are filled with highly educated populations tend to continue to attract more of the same. The reverse is also true.

What explains the wide geographic disparity in educational attainment? Many factors other than race and ethnicity are associated with school attainment. Regression of the New England data on the percentage of the population with completed four year college degrees shows that only 3.59% of the variation in this variable is "explained" by data on the racial and ethnic composition of the region's cities and towns when the region is analyzed as a single unit. Taken state by state, there is only one state, Rhode Island (with 23.80%), where race and ethnicity explain more than 11% of the states' degree completions by town and city. Income, on the other hand, together with race and ethnicity explained 42.77% of the variation across the region in 4 year degree completions by residents. On a state by state basis, three of the six New England states had more than 60% of the variation in college completions among towns within their borders explained when income was added to race and ethnicity.

Table 6 shows a dozen important variables, including income, that affect educational outcomes. This table gives the mean value as well as the fifteenth and eighty-fifth percentiles for each of the variables, the latter showing a measure of the variance in the series across places in New England.¹

Table 6 shows how variable the different factors influencing educational attainment are across New England. Fifteen percent of the towns and cities in New England have 86% or fewer of all their 5-17 year olds in school which is a very small percentage given the wide range in age that this statistic describes. The upper 15% of towns, by comparison, have 98% or more of their 5-17 year old population in school. When a city or town has a high percentage of students who do not stay in school through high school completion, there is little that can be done to increase the percentage who go on to college let alone to graduate from

¹*These variables are not distributed normally in the usual bell shaped curve. Therefore, rather than show the standard deviation, the fifteenth and eighty-fifth percentiles were chosen. Populations outside of these percentiles, i.e., less than the fifteenth and greater than the eighty fifth are roughly as numerous as those in a normally distributed variable outside of $\pm$ one standard deviation.*



Persons with a Bachelor's Degree or Higher in New England

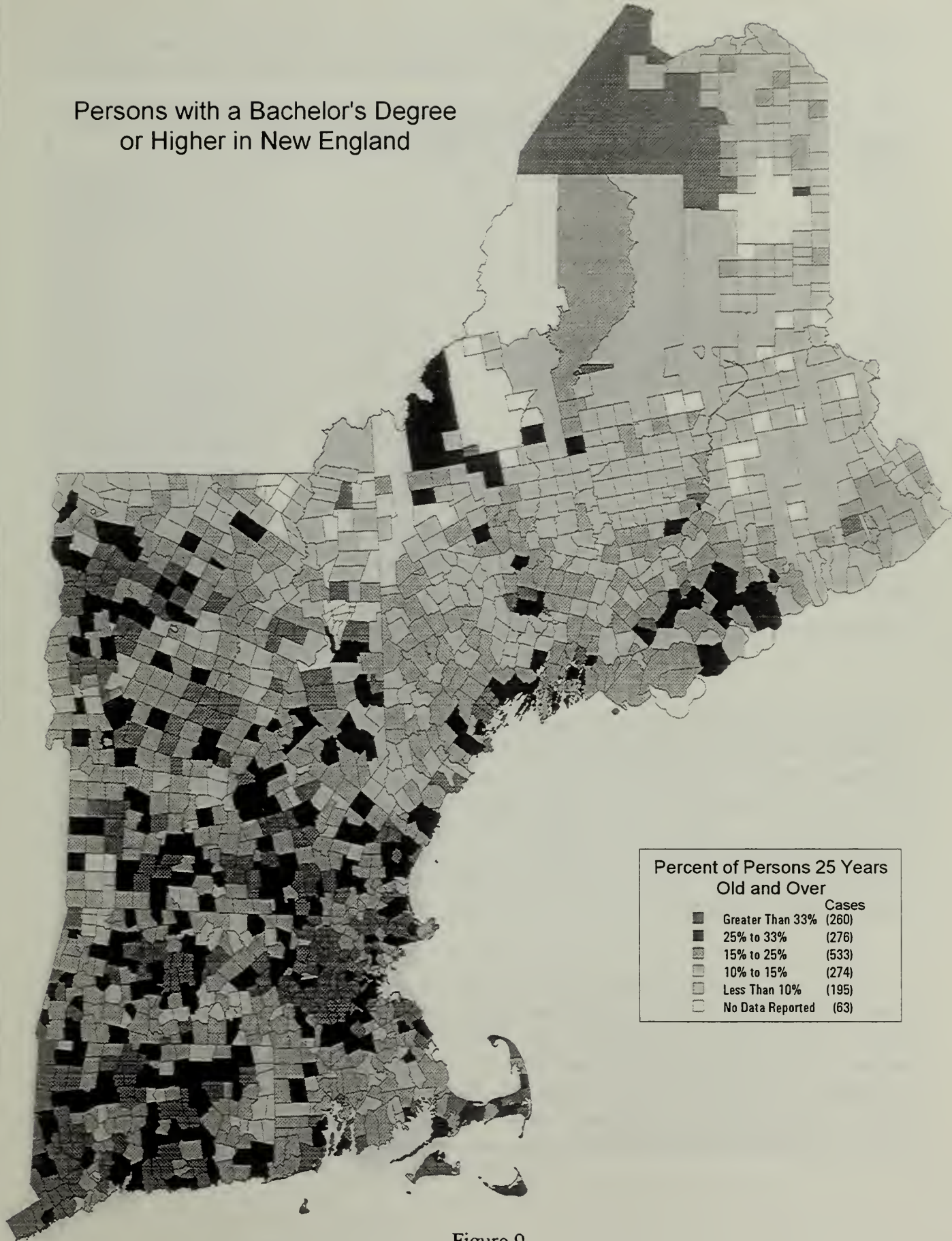
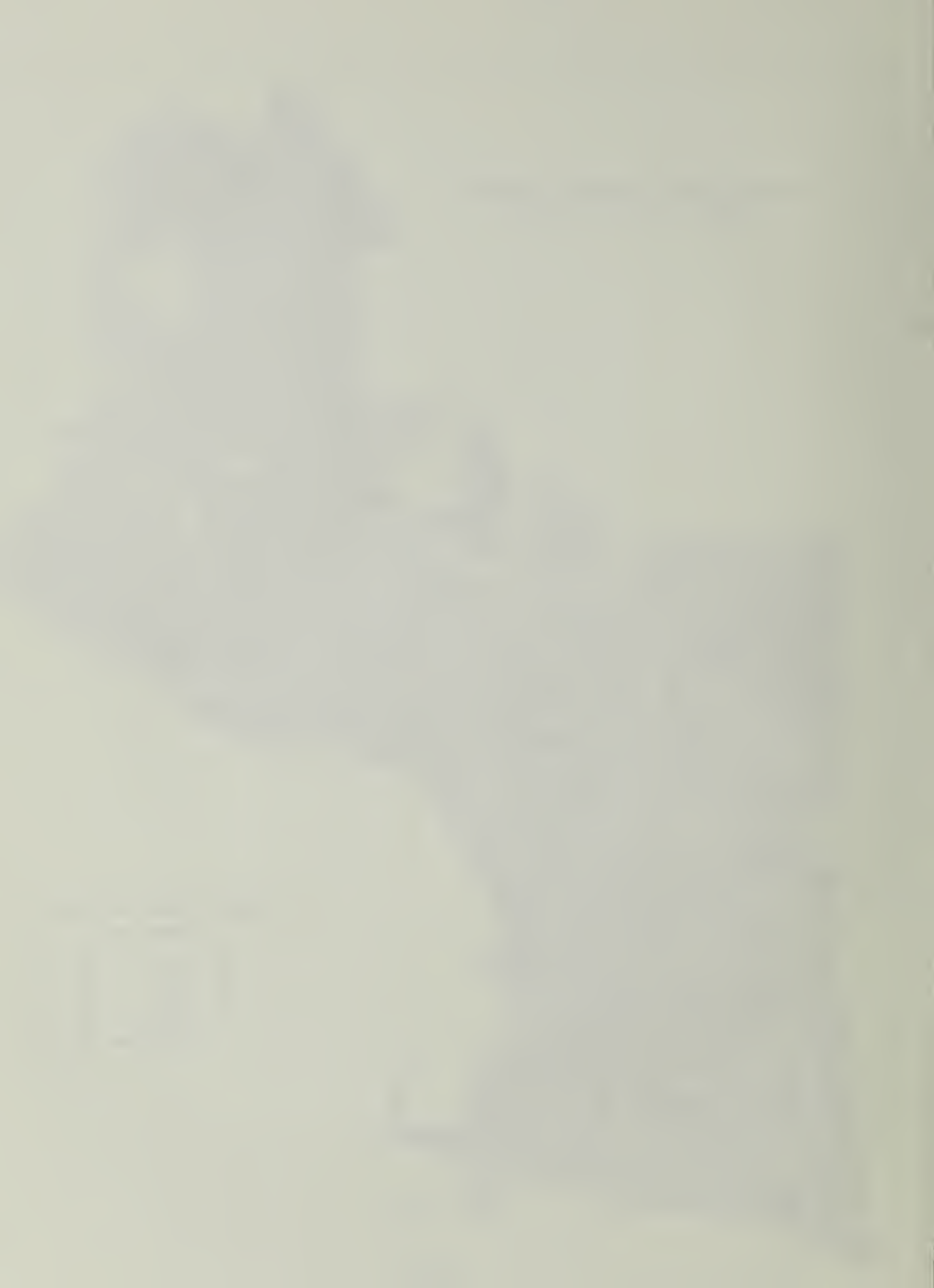


Figure 9



college. These communities, by and large, do not make up for their lack of start by importing more highly educated people through migration.

Table 6: Important Variables Determining Educational Performance: Distribution by Community			
	15th Percentile	85th Percentile	Mean
% 5-17 in School	86	98	89.47
% Elem. & Sec. in Private Schools	0	14	09.76
% Total Pop. Aged 0-17 or 65+	34	42	37.15
% Elem. & Sec. Students Minorities	0	8	32.5
% 0-17 Foreign Born	0	10	.66
% 16-19 Students Working in School	19	56	39.02
% 5-17 Speaking non-English at Home	0	8	4.93
% 6-17 in One Parent Households	8	25	16.96
% 6-17 with One/Both Parents Working	61	82	69.79
Median Family Income	25,804	50,629	37,359
% 0-14 in Pub. Assisted Households	1	16	8.05
% Housing with Real Vacancies	3	8	5.52

Working while in school significantly influences the amount of attention that students can give to school (home) work. While, because of the Census' mix of ages of persons on whom they report (stretching from 16 to 19 years of age), Table 6 does not fully distinguish between high school and college students, fifteen percent of New England cities and towns have more than half of their students in these ages working while in school. At the other end of this distribution, another 15% of cities and towns have less than one student in five working while in school. These differences, having little to do with race and ethnicity, play a significant role in the quality of the educational outcome; ultimately, they influence educational attainment.

There is nothing magical about the 15th or 85th percentiles. Yet the fact that more than 15% of New England cities and towns have more than one child in four living in single parent households while another 15% have fewer than one child in twelve living in single parent households is testimony to the fact that the conditions underlying educational attainment vary greatly from place to place. In general, the variables affecting educational attainment shown in Table 6 have less correlation with the minority status of a community than with its income. This provides some rationale for the notion that educational attainment is less a product of race and ethnicity than of income and class.



Language, however, is an important barrier to learning and progressing through school that is related to race and ethnicity. Overcoming linguistic barriers may be difficult enough when the language spoken at home is not the same as that spoken at school, but it can present a major problem when there is no adult at home who speaks English (a condition the Census Bureau has termed linguistic isolation). Figures 10A and 10B show the percentage of the Hispanic and Asian populations who speak Spanish or an Asian language at home. These further show the portion of these populations who are linguistically isolated.

Figure 10A is built around assumptions that Hispanic people who speak a language other than English at home speak Spanish and that the non-Hispanic portions of various racial groups do not speak Spanish at home. Under these assumptions, Figure 10A, shows how pervasive the language problem is for the Hispanic population. Almost 88% of the Hispanic population speak Spanish at home; and 30% of those who do ($=26.2/87.7$) are linguistically isolated. Making similar assumptions about Asians, Figure 10B shows that language is less of a barrier for Asian minorities—63.3% of the Asian population speaks an Asian language at home. However, Asians who do speak their native language at home are more likely than Hispanics to be linguistically isolated. For those not speaking English at home, 47.4% ($=30.0/63.3$) are linguistically isolated.

Another factor, widely acknowledged to influence educational attainment and not necessarily related to race and ethnicity, is teen age pregnancy and the attendant issues related to single mothers. Figure 11 shows the extraordinary percentage of children born to women, at young ages, who have never married. The total numbers of births to young mothers are highest in Massachusetts and Connecticut because of the larger populations in these states. However, the highest rate per thousand women between ages of 15 and 24 occurs in Maine and Vermont. High fertility rates at young ages is therefore not associated only with minority populations because there are comparatively few of these in Northern New England. Most significant, however, is that in every New England state more than 25% (in some states, nearly 50%) of births to women in this age group are to women who were not married and who still were unmarried as of the taking of the 1990 Census. This implies school attrition, poverty, and certain needs for day care facilities. Calculations in Massachusetts show that 30.4% of all unmarried women in the age range of 20-24 who became mothers as teenagers fail to complete high school and then later do not earn equivalent degrees. For the comparison group, only 9.4% of unmarried women who were not teenage mothers failed to get high school degrees (or their equivalent). Clearly, without dealing with issues attendant with teenage pregnancy, motherhood and day care, a significant root cause of low school attainment will continue unabated.



**NE: Language as a Barrier for the
Hispanic Population Age 5-17**

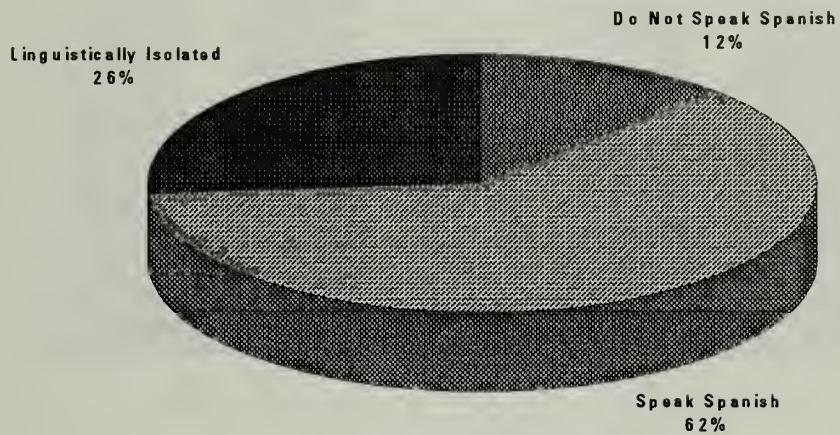


Figure 10A

**NE: Language as a Barrier for the Asian
Pacific Islander Population Age 5-17**

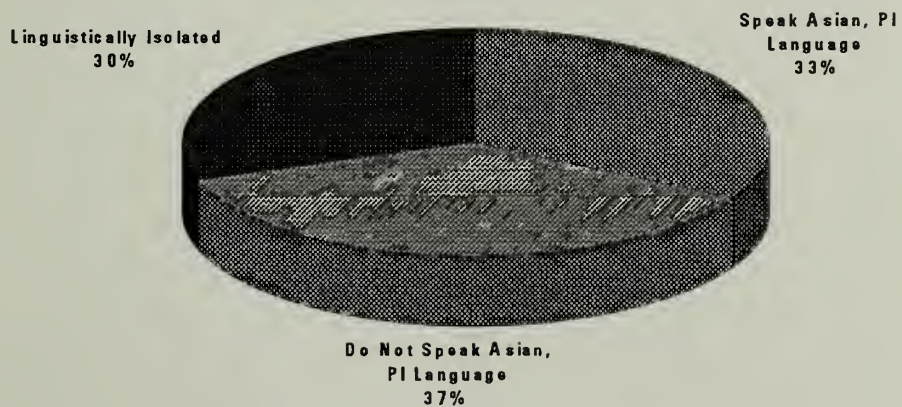


Figure 10B



NE States (1990): Number of Children Ever Born to Women Under Age 25

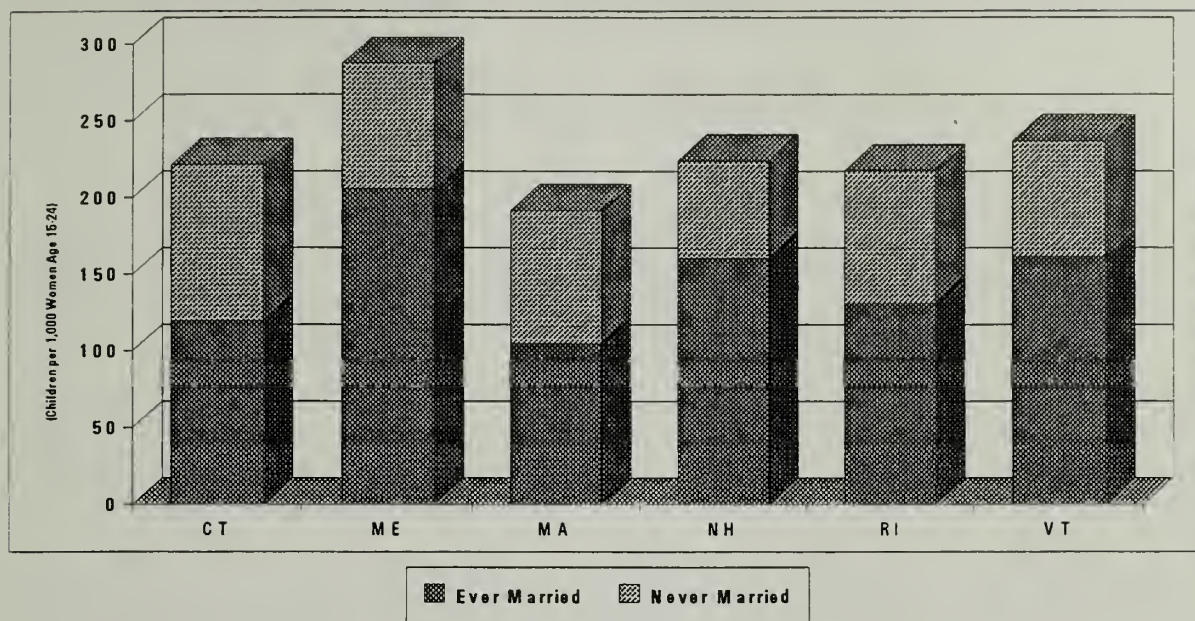


Figure 11

SUMMARY SECTION 7:

The Impact of Demographic Change on Higher Education: Competition, Cost Inflation, Enrollment Change and Access

Demographic change in New England goes beyond the increasing volume of young, minority populations. There has also been a significant decline in the total volume of 12th grade students, comprised largely of a declining white, non-Hispanic population. These declines have had their own independent effects on educational attainment, mostly through associated impacts on college costs and higher educational access.

Losses in numbers of students completing high school over the 12 years between 1980 and 1992 were greatest in southern tier states (CT, MA, RI) where each lost 1/3 of their 12th grade enrollments. Losses were less severe in the northern tier, less than 10% for New Hampshire, slightly more than 10% for Vermont and as much as 20% for Maine.

These decreases undoubtedly exerted pressure on colleges trying to maintain enrollments. Were it not for increasing participation rates among all students, particularly minority and older students, and better recruiting outside of New England, college enrollments in the region would have had to decline at the same rate as secondary school enrollments.

Student-borne costs rose faster than the Consumer Price Index (CPI) in the 1980s, both because of increased recruiting costs and the need for wider financial assistance. The result is that college costs absorbed an increasing part of the average family budget during the period, putting a premium on access.

7. The Impact of Demographic Change on Higher Education: Competition, Cost Inflation, Enrollment Change and Access

Demographic change in New England is not limited only to the increasing volume of young, minority populations. Along with this trend, there has been a simultaneous decline in the total volume of 12th grade students - a decline comprised largely of a declining white, non-Hispanic population. This, of course, has quickened the pace of the percentage increases of the minority population. The declines of the white, non-Hispanic population has had its own independent effects on educational attainment—mostly indirectly through their impact on college costs and higher educational access.

Figure 12 shows the losses in numbers of students completing high school over the 12 years between 1980 and 1992. These are the students who might potentially have continued on to college. The losses were greatest in the southern tier states (Connecticut, Massachusetts and Rhode Island). Each of these states "lost" about one third of their 12th grade enrollments across the period. Losses were less severe in northern New England, amounting to slightly less than 10% for New Hampshire, slightly more than 10% for Vermont, and as much as 20% for Maine. The smaller decline in New Hampshire and Vermont reflects their gains in inter-regional migration from the other four New England states.

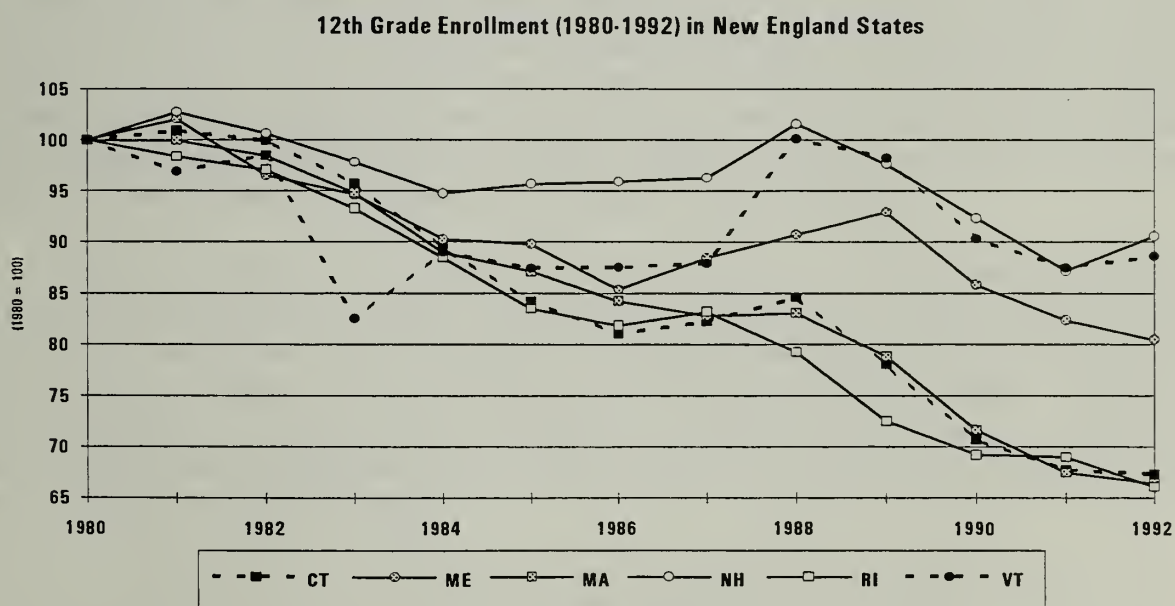


Figure 12

These decreases have undoubtedly exerted pressure on colleges trying to maintain enrollments. Were it not for the increasing participation rates of minority and older students and better recruiting outside of the New England, college enrollments in the region would have had to decline at the same rate as secondary school enrollments.

Declining high school populations have increased the pressure on admissions offices to relax admission standards. The situation has also increased competition between schools, pitting public and private and two-year and four-year against one another. Increased competition has become particularly acute between colleges in the same sector, resulting in a battle for students marked with increased amenities and services. Even recruitment, per se, has risen - by some estimates to between \$2,000 and \$4,000 per student. Services, recruiting offices and student counseling have become the tools used to recruit and retain students. Such functions and services, however, have increased costs in the region's colleges while draining money out of the need-based aid pools which serve low-income and minority populations.

Figure 13 shows student-borne room and board and tuition charges for the four types of colleges—two-year, four-year, public and private—in each of the New England states (panels A-F of Figure 13 each represent one of the New England states). These student cost increases are shown relative to both consumer prices (the Consumer Price Index—CPI) and higher education prices (the Higher Education Price Index—HEPI).

Throughout New England, student-borne costs rose faster than the Consumer Price Index, CPI, in the 1980's. The result is that college costs absorbed an increasing part of the average family budget during the period. Student-borne costs rose faster than the higher education price index, HEPI, as well. This implies an inflation of college revenues such that, all other factors being equal, if all students paid full costs, the revenue derived from tuition and room and board charges would have outpaced the actual increase in college expenses. Surpluses, of course, did not occur because colleges made capital improvements and expanded programs in order to keep pace with technology and to compete for dwindling numbers of students. In effect, colleges raised revenues during the 1980's at a faster rate than inflation in order to pay for these additional costs. Lastly, colleges also had to deal with rising costs for health and liability insurance—measures not included in the HEPI index.

Relevant to questions about educational attainment, many colleges also used funds from increasing fees and tuition to finance the increased participation of minority and low-income students (who augmented the declining pools of potential applicants). Higher tuition and fees paid by wealthier students helped defray the costs of lower income students. While such tuition subsidies make sense in terms of educational equity, they raise questions regarding the best mechanism and institutional control (the institution or the state and federal government) for subsidizing low income students.

CT: College Costs and Inflation

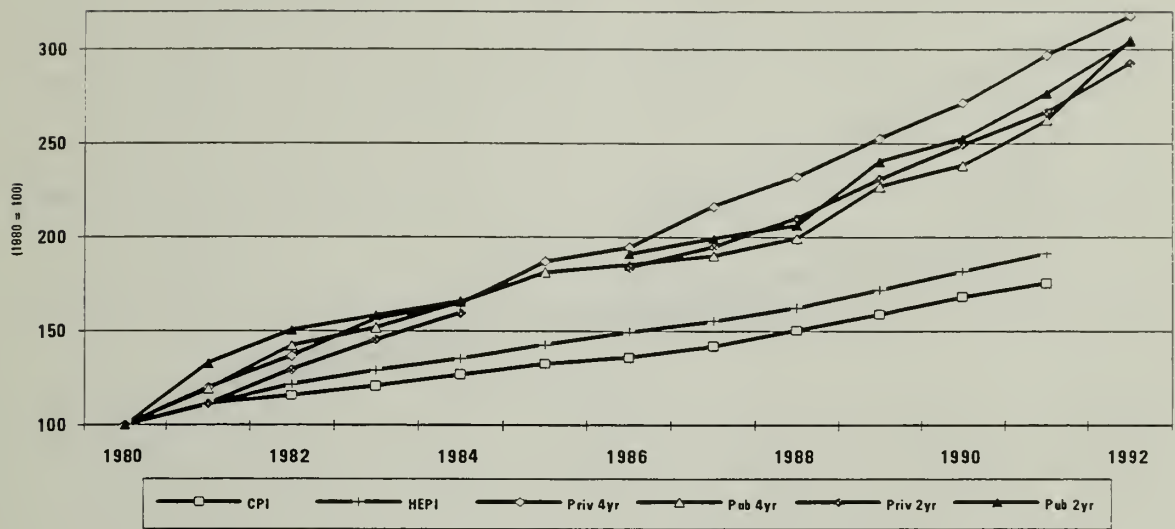


Figure13A

ME: College Costs and Inflation

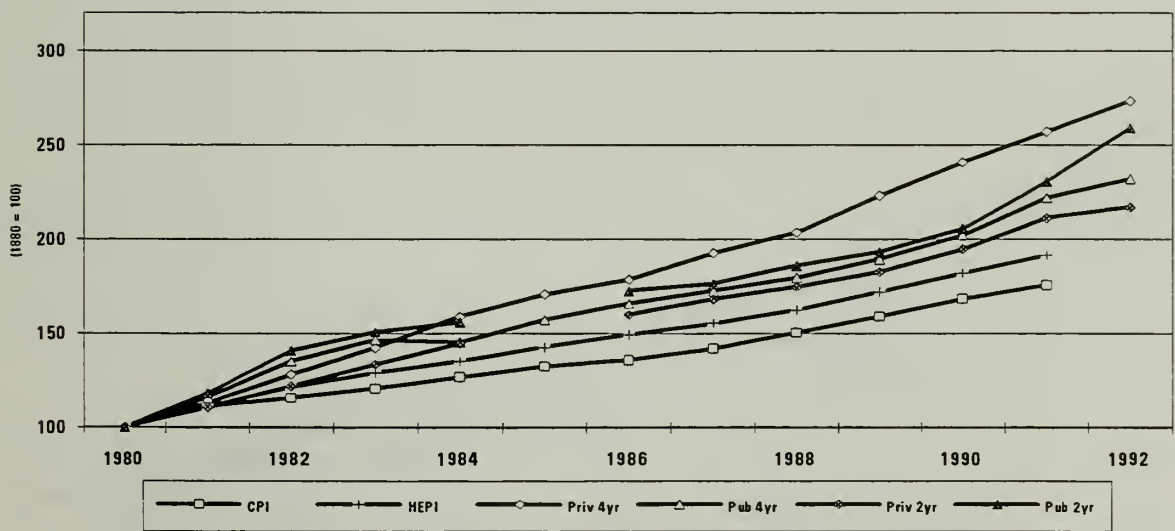


Figure 13B

MA: College Costs and Inflation

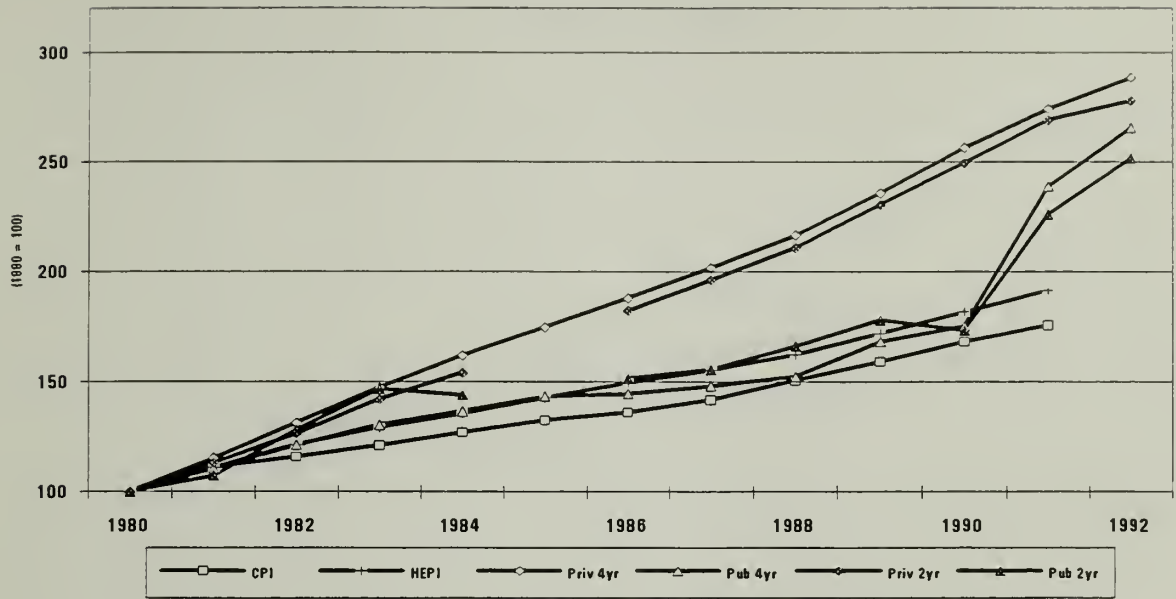


Figure 13C

NH: College Costs and Inflation

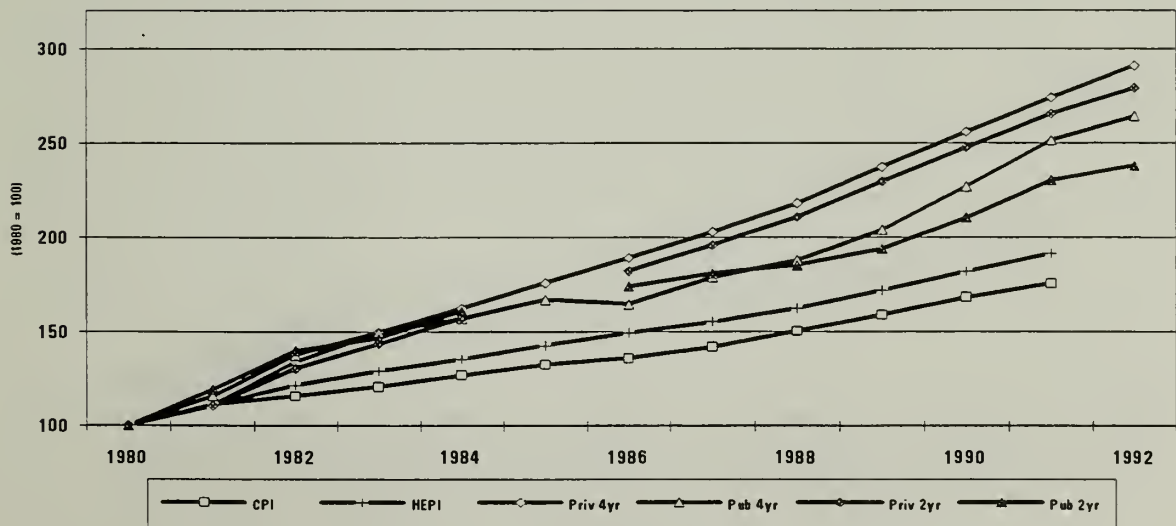


Figure 13D

RI : College Costs and Inflation

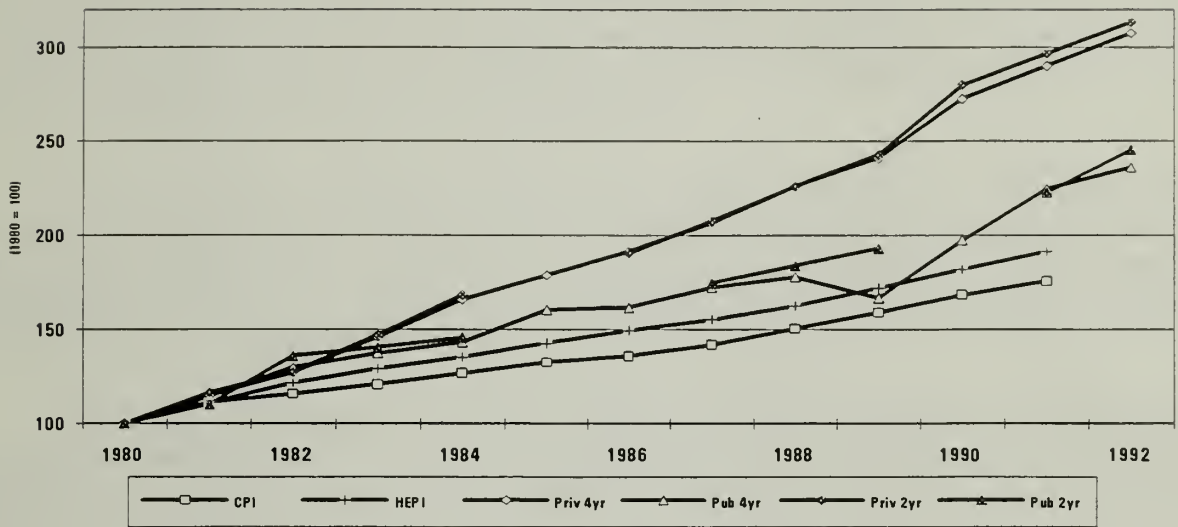


Figure 13E

VT : College Costs and Inflation

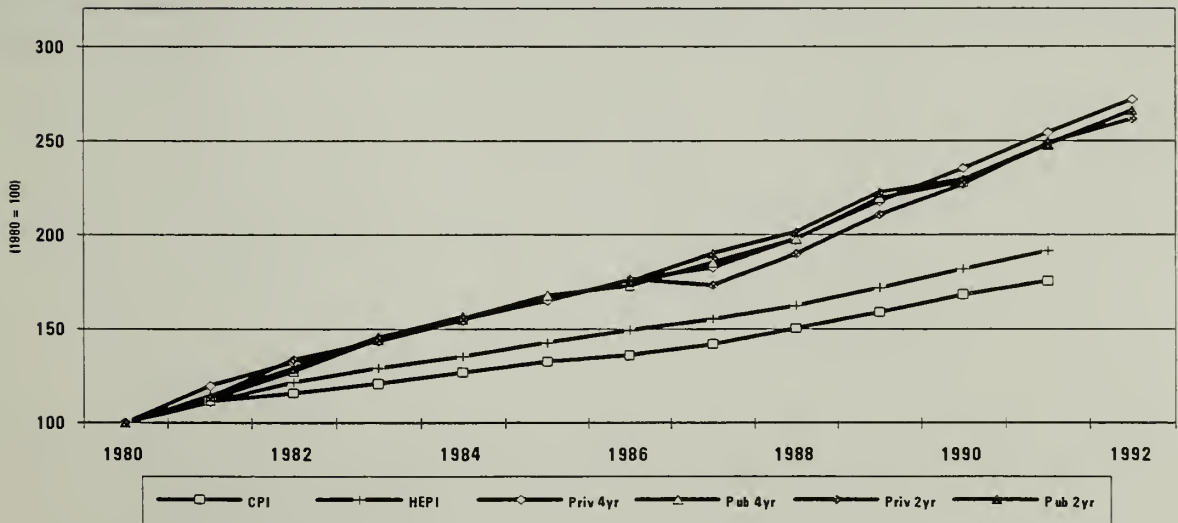


Figure 13F

Massachusetts, the only state in New England during the 1980's to maintain public sector costs within the range of the HEPI and CPI increases, determined in 1990 to use tuition subsidies, even in the public sector, as a way of providing assistance to low income students. This radical change from prior practice is evident in Figure 13, panel C, which shows a rapid percentage increase in costs. The resulting moves shifted Massachusetts from its enviable position of having public sector costs keeping pace with CPI and HEPI to one in which public sector costs inflated as quickly as private sector costs.

Unequal volumes of public assistance have always gone to the various educational sectors, two and four year, public and private. This is true in Massachusetts as well as in the other New England states. In Massachusetts, for example, the majority of public financial assistance is paid to private institutions and the balance goes to public institutions. Far fewer of dollars go to two-year institutions than to four-year institutions.

Under these circumstances, the 1990 policy shift in Massachusetts can be interpreted as a significant redistribution of resources (dollars) among the various sectors. Similar changes undoubtedly occurred throughout New England, producing a significant redistribution of students among the college sectors as families' college selection process adjusted (data shown in Figure 14). Unfortunately, the Integrated Post-secondary Educational Data Systems (IPEDS) on which Figure 14 is based began collecting data biennially in 1986, so there are only three years of data available. Data for programs of two-years and less were not collected in 1990. Hence our review of the historical data is much more limited here than in other areas analyzed.

Figure 14 does show, however, that New England increased its total higher education enrollment, despite the decrease in high school output. The four-year public education sector grew everywhere except in Massachusetts, likely a result of the cost shifts shown earlier in Figure 13, panel C.

Higher Education Enrollment, 1986,88,90 for New England States

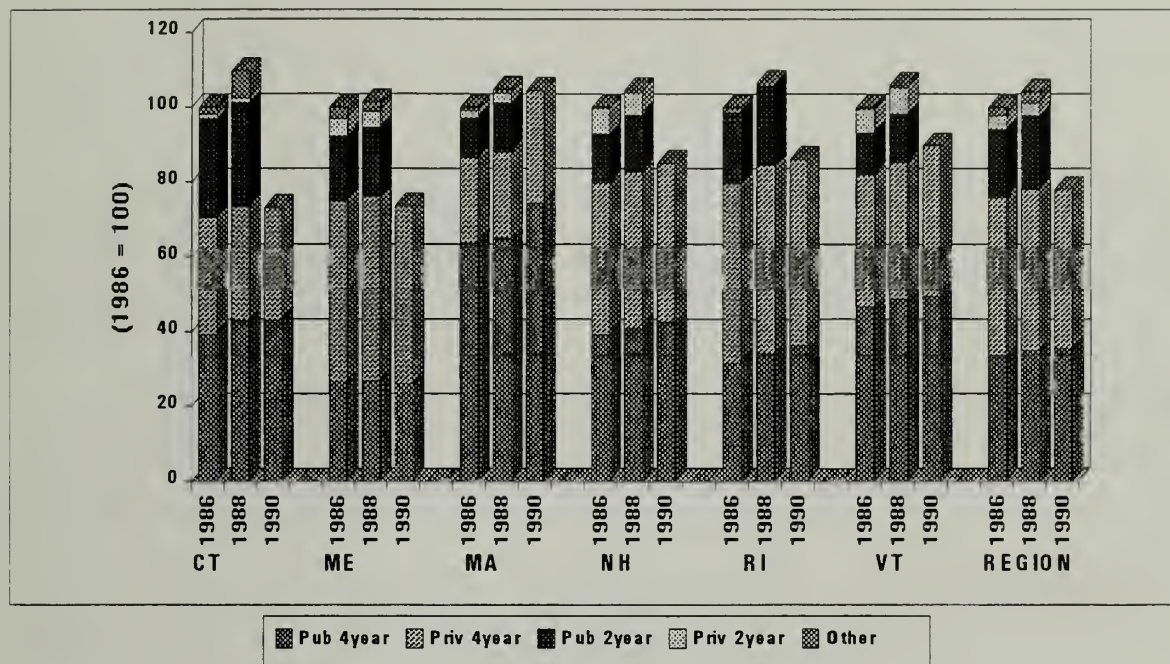


Figure 14

Given New England's need for greater four year degree completions, and the growth in two-year institutional enrollments at the expense of four-year enrollments, efforts must be made to ensure the maintenance of two-year programs and their logical integration with four-year programs. Only 15% or so of students at two year colleges go on to four year schools. Two and four year programs must integrate their separate visions of the world so that students do not get prematurely stopped in their educational progress. Such integration maintenance of uniform cost control throughout all of higher education, and developing a state philosophy on the appropriate balance between (the missions of) public and private institutions are high priorities for the 1990's.

SUMMARY SECTION 8:

Expectations about the Future

The age distribution of the current population, juxtaposed with the growth in minority populations, will have a sizable impact on the likely educational preparedness of the future work force.

From 1985 to 2012, projections show that the minority populations in Connecticut ready to enter the work force may increase from 18.1% to more than 33% of the total population if current fertility and migration patterns continue to hold. Similar change will be seen in Massachusetts, with projected minority populations increasing from 11.6% to slightly less than 33% over the same period. Other New England states are expected to have large increases in minority population growth as well.

Without a change in school and college performance, New England will continue to experience shortages in the better educated segments of the population. The most rapidly growing segments of the population have historically attained the lowest levels of education. Therefore, growth in an educated work force now heavily depends on improving the educational "success rate" of minority populations.

Increased scholastic attainment is an expectation that we cannot take for granted. New strategies must be developed in order to further improve access and retention of students in secondary and post-secondary schools.

Without a concentrated effort to increase educational throughput, there will undoubtedly be an inadequately trained work force in the region during the next decade.

8. *Expectations about the Future*

The age distribution of the current population, juxtaposed with the growth in minority populations, will have a sizable impact on the likely educational preparedness of the future work force. That much is clear given current performance levels of educational attainment for the minority populations. But understanding precisely what the future work force may look like requires extrapolation of the data currently available on students now attending elementary, secondary and post-secondary schools. The following section looks at the questions of how many people who are ready to work will be in the population segment, by age; how the group will change as the economy changes; and how prepared the work force of the 21st century will be to fill New England's needs if educational performance rates do not change.

a. Volume of People Ready to Enter the Work Force

Tracking youth through those ages at which they may enter the work force requires a data base that (ideally) identifies the population by age and by race and ethnicity, and which yields analysis of their educational attainment. The current enrollment data bases in Connecticut and Massachusetts facilitate this analysis because they track population enrolled in school by grade (which is a reasonable proxy for age) and by race and ethnicity. Models developed at MISER yield information from these data on statistical estimates of the migration behavior and the progression tendencies of school children by year and grade. Although the data for the other New England states is not quite as powerful in producing enrollment forecasts—since significant time series of data on race and ethnicity are not yet available from these states—data throughout the entire region does yield information about the educational progress of the aggregate population for all races and ethnicities. Therefore, the distribution of the school population by age (grade) can be projected for the other four New England states. In these cases, however, no race or ethnic detail can be given.

Figures 15A and 15B show the populations of potential labor force entrants (the population of young people at high school graduation age) by race and ethnicity. The labels for black, Asian, and white students should be interpreted as representing only the non-Hispanic components of these racial groupings. This limitation was implemented so that the aggregate population can be obtained by adding these to the Hispanic population without double counting or leaving out any group. People of "other" races and the American Indian people have been included along with the white population because the relative size in these populations is not large enough to adequately separate them for statistical analysis. Figure 15A shows that, from 1985 to 2012, the minority populations in Connecticut ready to enter the work force will increase from 18.1% to 36.1% of the total population. Figure 15B shows a similar change in Massachusetts, with the minority population increasing from 11.6% to 31.5% over the same period.

CT: Potential Labor Force Entrants by Race and Ethnicity

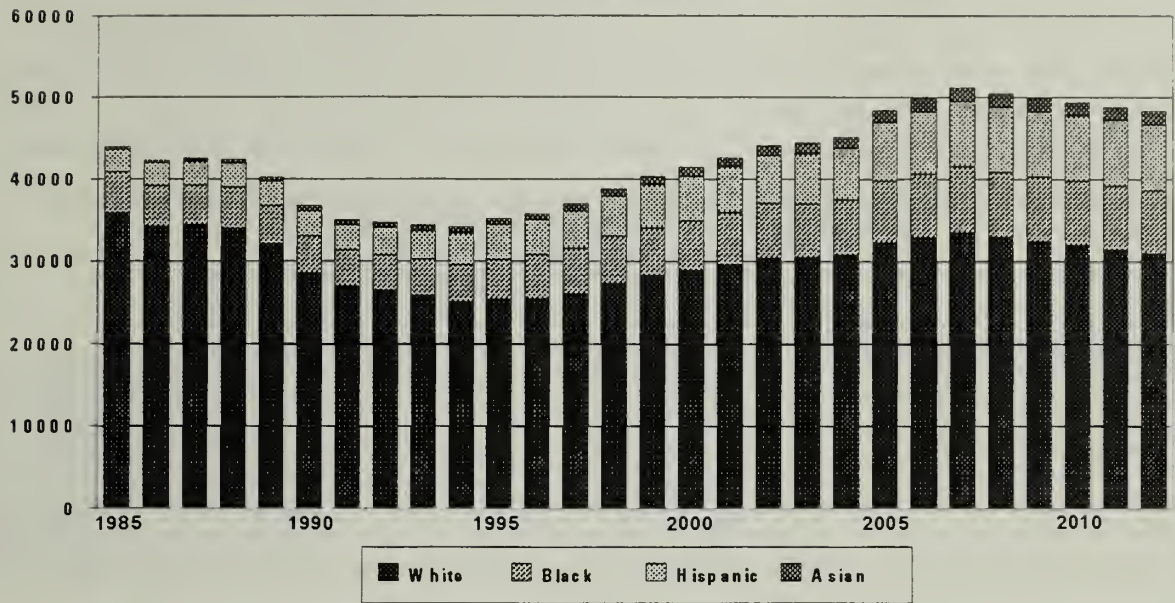


Figure 15A

MA: Potential Labor Force Entrants by Race and Ethnicity

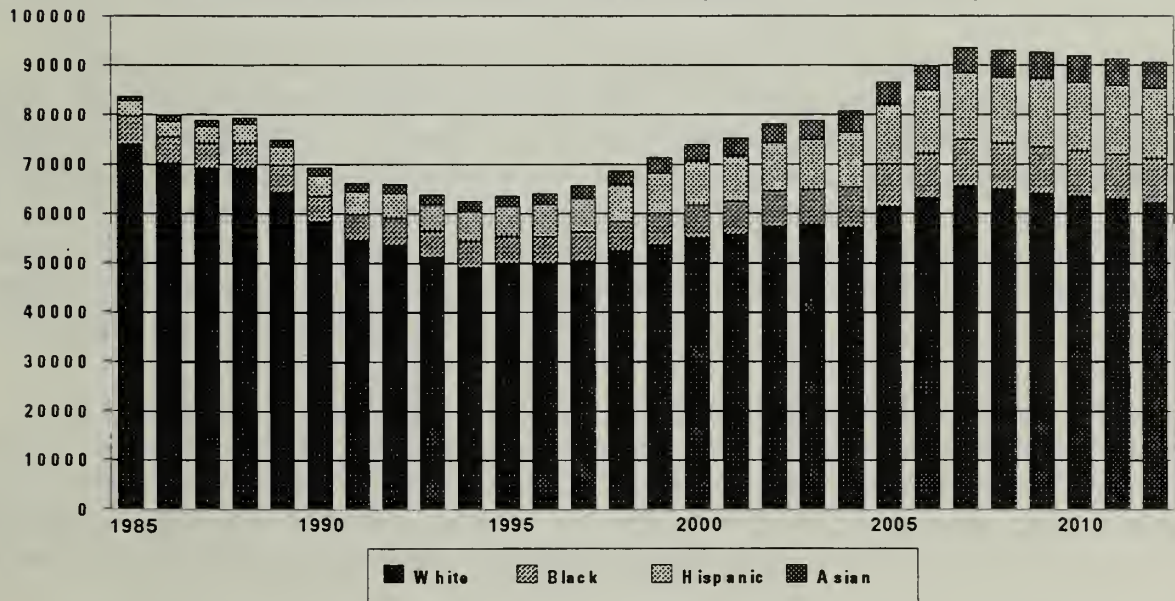


Figure 15B

b. The Impacts of Economic Growth and Retention

Table 7 projects the numbers of high school seniors, a group in age available to enter the work force, in each of the New England states through the year 2008. The volume of students completing secondary school with degrees (hence ready to enter the work force or to continue on to college) is clearly dependent upon migration and school progression rates.

Table 7: Impacts of Progression and Migration on the Size of the Future Work Force					
	Projected 12th Grade, year: 2008	High Migration Assumption	Low Migration Assumption	High Progression Assumption	Low Progression Assumption
CT	40,055	44,774	36,130	48,935	26,804
ME	16,274	20,108	7,302	-	-
MA	73,289	74,996	58,503	95,583	50,107
NH	14,794	24,783	11,576	-	-
RI	9,892	12,066	9,205	-	-
VT	7,916	15,174	2,305	-	-

Again, because of the availability of enrollment data by race and ethnicity for Connecticut and Massachusetts, it is possible to estimate the progression/migration model in those states at a desegregate level. Hence in Connecticut and Massachusetts, projections can be made of student attrition and (its opposite) high school completion by race and ethnicity. Analysis in these states also produces desegregated levels of migration for each race and ethnic group, such as those shown earlier in Figures 8A and 8B.

Table 7, shows the most likely case (the baseline forecast) for each of the New England states. The high and low migration columns show projections for high school seniors under alternative conditions where migration of the total population (in the cases of Maine, New Hampshire, Rhode Island, and Vermont) or of each of the populations by race and ethnicity (in the cases of Connecticut and Massachusetts) is projected to continue at its highest or lowest historical rate. The high and low migration assumptions indicate the extent of likely population variations which may arise from migration (which in turn is likely to be associated with regional economic conditions).

In comparison to the possible variation in the labor force that may stem from future migration, the high and low progression assumptions for Connecticut and Massachusetts show much greater variations. These differences highlight what would happen if the entire population of potential seniors achieved at the highest or lowest progression rates among the various race and ethnic groups within the two respective states.

Senior class profiles for Connecticut and Massachusetts are shown in Figure 16A and 16B. These figures show the pattern of the baseline forecast of seniors as well as the patterns of seniors under high and low migration and high and low progression assumptions. Clearly, from inspection of Figures 16A and 16B, greater changes in the volume of students come from

variations in progression rates of students than from variation in migration rates. A change in progression assumptions alters the forecast by roughly $\pm 25\%$ to $\pm 30\%$ whereas migration produces $\pm 10\%$ variation.

CT: Impact of Progression and Migration on 12th Grade Enrollments

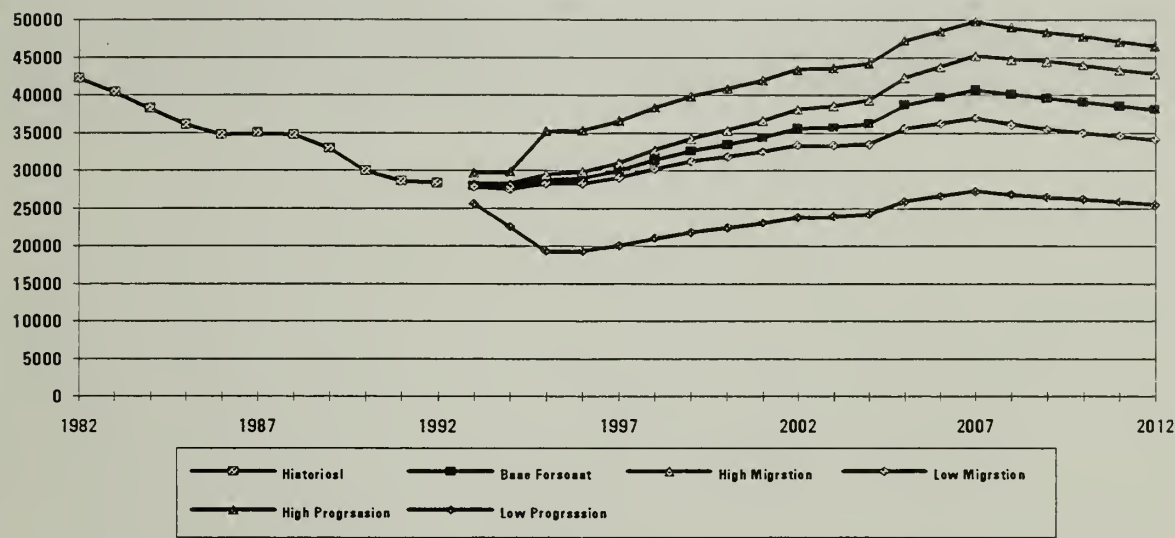


Figure 16A

MA: Impact of Progression and Migration on 12th Grade Enrollments

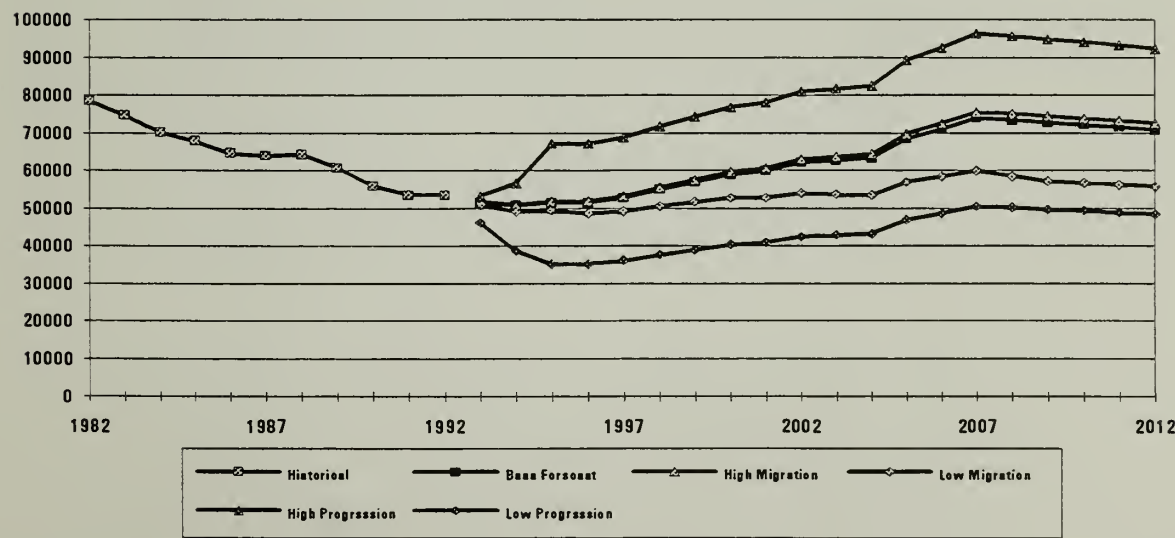


Figure 16B

Natural migration of people into the New England states during good economic times tends to fuel growth in the size of the work force, while migration out of the region during bad times produces a reverse, corrective effect on the economic engine of the region. This has always been known, although when considered in light of Figures 8A and 8B, it is clear that much of the volume of migration is not in response to economic conditions. Figures 16A and 16B show that the response of the size of the high school educated population to invigorated migration flows is much smaller than that which comes in response to increased educational participation.

c. Likely Distribution of Educational Attainment in the Future Work Force

Without a change in school and college performance, New England will continue to experience shortages in the better educated segments of the population. The most educated group experienced the most rapidly increasing wage rates in the 1980's and early 1990's—the sign of "market judgment" that this population has grown too slowly in the past 20 years. Figure 17 projects educational attainment levels for new entrants to the work force through the year 2012. This projection assumes that progression will continue at current rates through secondary school into, and through college. Figure 17 distinguishes among the population by race and ethnicity, then recombines the total population to show the impact of shifting trends among growth rates in the population by race and ethnicity.

In many ways, Figure 17 represents the standard against which improvements in the educational attainment of the New England population should be measured. Increased scholastic attainment is an expectation that we can not take for granted. New strategies must be developed in order to further improve access and retention of students in secondary and post-secondary schools. Without a concentrated effort to increase educational throughput, as indicated by Figure 17, there will undoubtedly be an inadequately trained work force in the region during the next decade.

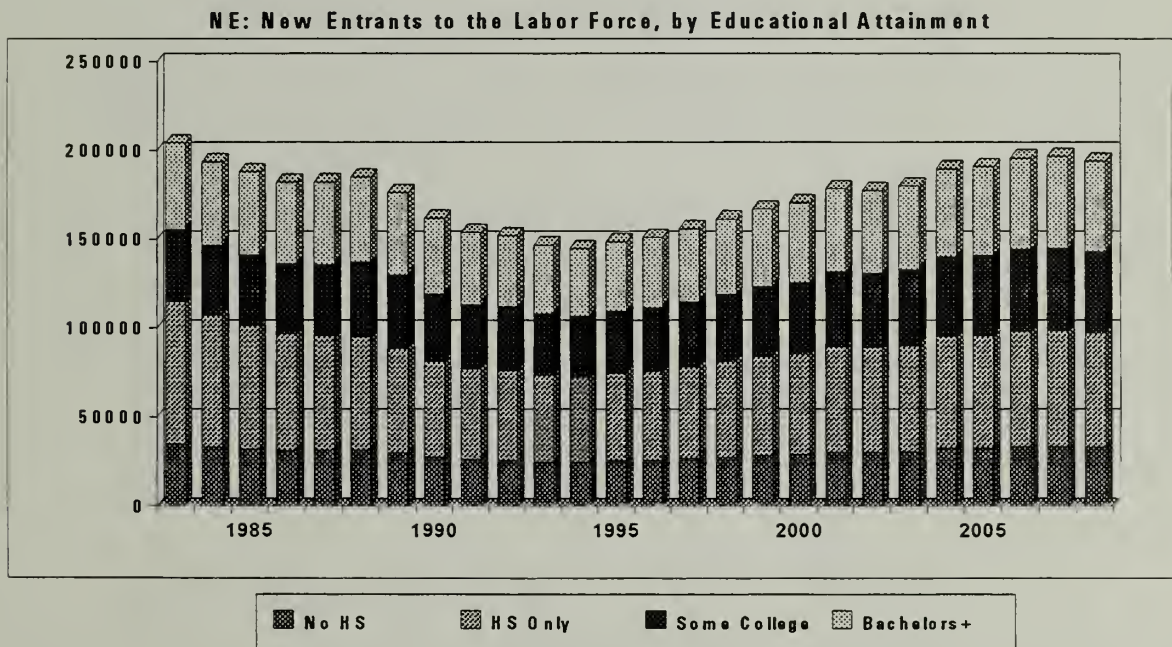


Figure 17

POLICY RECOMMENDATIONS SUMMARY:

Elementary and Secondary School Education Reform Recommendations

- Separate financing of elementary and secondary school education from the local property taxes in order to provide quality education to all income levels and communities by:
 - establishing minimum levels of investment per student for education
 - encouraging local communities to raise funds from local businesses to supplement school income
 - allowing wealthy communities to enrich education without barriers
 - collecting taxes fairly from all taxpayers according to economic condition and acknowledge that education investment gives dividends to communities by increasing property values
- Provide incentives for the implementation of proven model programs that improve public school system, e.g., the Comer methods used in New Haven, Connecticut.
- Increase inclusion of special needs students in regular classroom settings with non-disabled peers and increase proactive learning and the direct transfer of knowledge among all students.
- Develop alternative assessment measures of student achievement to replace the standardized tests (norm-referenced, multiple choice and criterion-referenced) which have been used for the last 20 years. *Note:* Connecticut, Massachusetts, Rhode Island and Vermont have already begun to do this.
- Reduce tracking by ability as this leads to homogeneous classrooms and unrealistic life settings.
- Increase the number of minority teachers and administrators in public schools.
- Integrate vocational education schools into the educational mainstream in order to better prepare students for the needs of the work place.

Higher Education Reform Suggestions

- Increase scope and volume of articulation agreements among high schools, two-year colleges and four-year colleges, facilitating student movement among academic levels; making it easier for students to transfer economically and scholastically.
- Encourage personal interactions among individuals with different levels of educational attainment; compensate role models either economically through grant money or reduced interest loans, or educationally through class credit.
- Establish comprehensive state curricula for students aspiring to continue through high school into college.
- Provide free remedial classes for students in need of additional training in order to decrease attrition in post-secondary educational institutions where remediation is often seen by students as costing money and using time without advancing credit toward degrees.
- Create academic and social climates in higher educational institutions that will attract and retain minority students.
- Provide facilities for women with children who wish to continue their studies.
- Promote development of college curricula that teaches cognitive and analytical skills to meet the career needs of graduates. The new curricula should include both critical thinking and career-specific courses.
- Implement state-wide reviews of the missions across the various sectors of higher education - both public and private, two- and four-year colleges.
- Produce a tuition policy that considers both the student's ability to pay and the region's economic need for specific skills.
- Properly implement financial aid system to maximize attendance and educational attainment.
- Provide alternative means for repaying student loans -- developing income-contingent repayment schedules, allowing repayment through community service, particularly where such service increases the educational preparedness of future generations of students, and increasing grant and scholarship levels.

Part II: Policy Recommendations

In order to increase the educational attainment inherent in the population of New England, a portion of each of the existing population segments, arrayed by current level of attainment, must achieve progressively higher levels of completion. Some without high school degrees must complete their secondary education. Some now completing high school degrees, must begin participating in college, and so forth. Finally from this process, more will arrive with completed two and four year degrees. This shifts the distribution of educational attainment upward, alleviating the problem that there are too few in New England with sufficient educational skills. Only such a process will alleviate the labor market imbalance which produced the symptomatic wage changes of the past decade. However, this will require increased student progression in all levels of school and college and improved access to higher education. The following recommendations, divided so as to reflect their separate application to elementary and secondary or to higher education, are designed to accomplish this goal.

Elementary and Secondary Education (ES)

ES.A. Separation of the finance of elementary and secondary education from the local property tax.

Elementary and secondary schools capture children at the height of their potential learning peak. So to improve educational attainment, it is only natural to begin with greater attainment in elementary and secondary schools. There are, however, great differences among communities in amounts of money directed toward the educational function. These disparities fuel the significant variations in educational attainment seen among communities across the region.

When they do not do so already, state-wide standards should:

- establish minimum levels of investment per student in education;
- assign responsibility to local communities for raising such funds to the extent that they do not create unreasonable burdens on communities' abilities to pay;
- allow communities desiring to enrich their expenditures on education to do so without limit; and
- collect taxes from sources which fairly divide effort among persons by income, acknowledging in the process that educational investment returns dividends to communities through increasing property values;

Some of these principles are currently being tested in New England such as, for example, in the school finance suit currently pending against the Massachusetts Secretary of Education. To the extent that school spending improves property values in towns and cities with high quality educational systems, a rationale exists for charging for school services through property taxes. However, the property tax is notoriously regressive, with its heavy burden falling on persons with low income. Further there is no property market return to the

cities and other places with lower educational quality in their school systems.

State school reform should emphasize finance reform. The role of property taxes should be reduced except as in providing enrichment funds. Out of sales and income taxes, the State itself should bear primarily responsibility for minimum funding levels of community school systems. Further, such restrictions as Proposition 2½ should be eased so as not to hamper spending desired in communities that can afford to spend more than a state minimum. Such changes in state policies lay the foundation for improving educational attainment, impacting all communities, businesses and citizens regardless of location.

ES.B. *Provide incentives for the use of proven models for improving public schools.*

A number of efforts aimed at demonstrating reform in existing public schools are under way. Successful efforts should be modified and adopted as needed to apply to other school systems in the region. The region's schools must be encouraged to implement these changes as they fit the various communities.

Two such successful programs have even been developed within the region. One is the School Development Program used in two elementary schools in New Haven, Connecticut. During a 15 year period this program, named after its prime motivator and known as the Comer Model, improved achievement rankings of the two schools from among the lowest academically of 33 comparable schools in New Haven to third and fifth, respectively, and has restructured the way in which teachers, parents and administrators work with each other. Parents are active in determining the course of their children's schooling which demands higher order cognitive skills of all students. More than 50 schools nationwide are now implementing aspects of the Comer Model.

The second region based program is the School of the 21st Century designed by Edward Zigler and his colleagues at the Bush Center for Child Development and Social Policy at Yale University. This program offers a full range of mental, physical and educational services to students, and hinges on partnerships with other agencies and the use of neighborhood schools to deliver a wide range of community services.

Many other designs have also been proposed. Stanford University's Henry Levin and colleagues at the Center for Educational Research launched a pilot program in San Francisco five years ago. Now copied in 140 elementary and middle schools across the nation, this program leaves disadvantaged students in the classroom and accelerates their instruction. This enables them to catch up to their peers. The program registered the largest gains on standardized test scores of 72 elementary schools in San Francisco.

States will influence wider experimentation with community and parent based participation if they offer reimbursement of part of the experimental costs of attempting such programs in instances where controlled experiments and measurements show that the reforms work. Establishing a "challenge fund" and paying for communities which can both

demonstrate needs and success of an attempted educational reform, may motivate communities which otherwise find it hard to rock the status quo.

ES.C. Provide "school choice menus" which give access to experimental programs. Such access should be promoted primarily within school districts. When applied across school districts in larger geographic regions, care must be taken to provide adequate funding for students who remain in districts losing school enrollments under such plans.

Public schools in New England, as elsewhere in the country, have provided varying degrees of parental choice since the early 1970's. Such choice has been more prevalent in urban than in rural school systems. Urban school choice has been fueled by the establishment of magnet schools which have addressed racial inequities which result from neighborhood demographic settlement patterns.

Choice seems to be a desirable good. According to a 1991 national Gallup poll on education, 42% of all polled rated their schools as better than average. However, black and urban respondents were much less satisfied—only 28% felt their schools better than average. These sentiments parlayed into stronger support for a voucher system among nonwhites and urban residents. Whereas 50% of the entire sample favored vouchers, a greater percentage, 57%, of blacks and urban dwellers favored vouchers than of rural and white populations.

The voluntary METCO (Metropolitan Compact) program in Massachusetts is an example of parental-choice program offering "cross-town" alternatives. This has worked well because it is done on a limited basis. Supported strongly by the state's black caucus, as well as by superintendents, who appreciate both the additional state funding and the increase in their districts minority enrollment, the program has enjoyed great success.

In order to carry out such programs on a larger scale, however, those school districts gaining students should receive funding equal to what they already receive per student. This should come from funds previously received by the sending school district. However, state funding is necessary to ensure that the sending district's remaining students are made better off after the exchange than before. Only then will all be improved - the receiving school which only participates if it wishes; the transferring students who also go if they want; and the remaining students who must receive more funding to be made similarly better off.

ES.D. Increase the inclusion of special needs students in regular classroom settings with their non-disabled peers and otherwise increase the direct transfer of knowledge among all students.

The education of children with physical, emotional and/or behavioral handicaps is required by state and federal law. Government-mandated programs have been designed to address the educational needs of disabled children on an individual basis and public schools have been given the responsibility for educating special needs students from ages 3 to 22. This

requirement has absorbed a growing percentage of the teaching resources in New England — approximately 15%, doubling the percentage use of such resources since the early 1980's. As might be expected, impoverished areas with higher drug dependency and inadequate care of infants have the greatest difficulties of living up to the spirit of special education intent.

Most special education students are removed from the regular classroom producing what is commonly referred to as a "two-tier" school system, one tier for the "regular" students and the other, separately staffed and administered, for the special needs students. The system has been driven to two-tier status primarily by state and federal reimbursement practices. With the exception of some teacher training, staff development and program development funds, the majority of funding is driven by the numbers of students in special education programs. This process has turned special education into an entitlement program of the public schools with funding tied to clear demarcation (separation) of special ed students from ordinary students.

Pilot programs that incorporate special education instruction in the traditional classroom environment are being tested throughout New England. Although the majority of efforts are at the elementary school level, some programs are addressing the middle school, junior high school and the high school levels. The common approach is the use of instructional support teams, comprised of experienced classroom teachers, administrators, and special educators. This allows a second teacher in the classroom to provide services to students with special needs. It also allows students to interact and to provide support to their peers; in fact, to see special education students as their peers. Undoubtedly, involving students to teach other students works as well in the lower grades as it does in higher education where such techniques have worked with much success.

ES.E. Develop alternative assessment measures of student achievement to replace the norm-referenced, multiple-choice and criterion-referenced standardized tests which have been standard in the last twenty years.

It is widely accepted among educators and researchers that standardized tests adversely affect the quality of education delivered in the public schools. Because of the high stakes associated with their use, standardized tests tend to drive instruction and narrow the curriculum. As a result, most tests measure a relatively low-level of knowledge and skills. According to Professor Linda Darling-Hammond, co-director of the Center for School Reform at Teachers College at Columbia University, "In contrast to testing in most other countries, testing in the U. S. is primarily controlled by commercial publishers and non-school agencies that produce norm-referenced, multiple-choice instruments designed to rank students cheaply and efficiently." These instruments were initially created to make tracking and sorting of students more efficient.

Four of the New England states—Connecticut, Massachusetts, Rhode Island and Vermont—have already begun to use alternative forms of student assessment, evaluating individual student's writing ability, verbal skills, computer work, individual and group

demonstrations, study and work habits, and relationships to others. Vermont's portfolio assessment program has received national attention because of its status as the first statewide program in the nation to cover all subjects and grade levels. In December 1992, the Rand Corporation released a study of Vermont's Portfolio Project that recommended several changes now being implemented. One recommendation suggested the state improve the way teachers are trained to score student performance. A second recommendation urged the selection of a group of highly trained teachers to be utilized to generate state and regional data. A third major recommendation called for the inclusion of standardized tasks, especially in mathematics, in student portfolios.

Major efforts by the Mathematics Science Board, the National History Standards Project, the National Academy of Sciences and others are underway to develop national standards in all areas of the curriculum. All agreed-upon curriculum standards include the common denominator of establishing specific learning objectives. The most important goals include developing cooperative or group learning situations, developing inquiry and problem-solving skills, using hands-on materials and real-life situations, and increasing student involvement in decision-making.

ES.F. Eliminate or reduce the use of tracking by ability in elementary, middle and junior high schools.

Research in the past 10 years on the practice of tracking students in ability-grouped classes has shown that this system presents real barriers to academic achievement. Tracking is especially detrimental to poor and minority students who are disproportionately represented in the lower tracks. The National Governors' Association, the Carnegie Corporation, the College Board and the Massachusetts Board of Education are among those groups that have issued reports or have taken positions favoring the elimination of tracking programs.

In addition to labeling students, tracking creates a defacto system of social and racial segregation. In fact, tracking often means that white students--who make up the vast majority of higher tracked levels--take few, if any, classes with minority students. Greatly reforming traditional student tracking practices is one of the most important priorities for America's public schools. Heterogeneous grouping of students must be matched with changes in curriculum, teaching materials (particularly textbooks) and in traditional teaching and learning strategies. Those strategies must be careful, of course, not only to care for the students with lower developed talent but also to insure that the accelerated student is not left to be bored by slower pace. Eliminating tracking requires fundamental changes in the way schools address all students' needs.

Massachusetts is at the vanguard of "detracking" efforts. Pilot programs are underway at all grade levels. In fact, 21% of all public middle schools in Massachusetts now group all students heterogeneously, compared with only a handful a decade ago. An additional 69% of the state's public schools have adopted limited heterogeneity in grouping during the past three years.

ES.G. Develop and implement specific programs that increase the number of minority teachers and administrators in public schools.

The percentage of minority teachers and administrators in most of New England's public schools does not represent the demographics of the region. Such data is not available throughout the region, but a special study done by MISER in 1986 showed the range in minority student to minority teacher ratios to vary widely among the 40 largest minority school districts, moving from 30/1 to 324/1. By comparison, the overall student to teacher ratio at that time was only about 12/1, showing the shortage of minority teachers.

While all students benefit from interacting with an ethnically diverse group of teachers, diversity--through its balancing of minority student/teacher ratios with those of the majority population--offers minority students cultural continuity and the language skills and understanding necessary to facilitate communication. Teachers and administrators serve as role models for students. A more diverse faculty increases participation of minority parents. Families of minority students often feel more at ease raising issues and concerns with teachers and administrators who have similar cultural experiences, and with whom they feel they can communicate.

Numerous efforts are underway in New England to increase the recruitment of teachers and to improve teacher training programs. For example, Connecticut's Department of Education works cooperatively with the University of Puerto Rico to recruit new teachers for the State's public schools. Recruitment also is now being made easier in the Northeast by allowing alternative routes to certification. This gives credit for life experience and allows degrees in areas other than education. As well, an innovative, interstate certification compact has been developed in the Northeast. The New England states, along with New York, enable a teacher who is certified in any one of the states to teach in any one of the other states without immediately obtaining a new certification.

Successful national programs aimed at diversifying the teaching workforce are the DeWitt Wallace-Reader's Digest Fund and the National Teacher Corps. Started in January 1989, the DeWitt Wallace-Reader's Digest Fund announced in January 1993 a \$20.6 million expansion of its "Pathways to Teaching" project, aiming at improving recruitment and training of new teachers and emphasizing minority teacher recruitment. The National Teacher Corps recruits recent college graduates with liberal arts degrees to teach in inner city schools for two years following graduation.

Beyond establishing new recruitment strategies, it may be just as important to address the institutional barriers that currently reduce the number of minority teachers. These include:

- **Seniority clauses in teacher contracts** which leave younger minority teachers—who typically don't have much seniority—particularly vulnerable to budget cuts, and

- **The undervaluing of teachers** which attracts, hence, fewer applicants. This is true in regard not only to the private sector competition for labor but also to the public services where teacher salaries are often equated with those of fire and police personnel. While all public services are vitally important, few require employees to have the advanced college degrees that teaching does.

ES.H. Integrate vocational education schools into the educational mainstream in order to better prepare students for the needs of the work place.

Vocational education was formally developed in the early 20th century as an alternative program for high school students planning to pursue farming, factory work or the artisan trades. Vocational programs evolved as an educational stepchild to the more traditional college preparatory training. In many school districts, vocational schools became separate high school systems, complete with their own school committees and administrations. Further isolation from academic high schools occurred with the regionalization of vocational schools. As a result, vocational education has become a distinctly separate track from academic education.

In September 1990, Congress attempted to reverse many of these forces by approving a new vocational education law intended to prepare all students for work. The main provisions of the so-called Carl D. Perkins Vocational and Applied Technology Education Act Amendments include:

- the integration of academic and vocational education by shifting away from the traditional trade-skills orientation at vocational schools and toward a revised program based on the acquisition of academic and critical thinking skills,
- the establishment of distinctly separate funding mechanisms for secondary and post-secondary programs, and
- the placement of federal dollars to districts with large percentages of poor families, which makes the issue highly relevant to the issue of equalizing racial and ethnic achievement.

While the principles of the new Perkins Act are sound, three strong recommendations should nonetheless be implemented concurrently with implementation of the Perkins Act:

1. The current funding resolution of the Perkins Act, is too piecemeal. Institutions must apply for funds in specific training areas. Then they must produce these programs and find replacement funds in the next round of competition. Otherwise institutions stand to lose fledgling programs. Better continuity needs to be built into training grant cycles.

2. Students, particularly in secondary programs, feel isolated by choosing a vocational track because this separates them from regular academic programming. Remedy must be found for this so that there is less stigma attached to vocational education.

3. In comparison to Germany, where high school/fachhochschule connections linking secondary and higher education are strong, the U.S. has established little follow-on activity to traditional vocational educational programs at the secondary levels. Connections must be made much stronger with the higher education developing the theoretical basis for what has been learned at secondary school levels. Without such linkages and the encouragement of a much higher quality students into vocational programs, the U.S. capacity to house strong manufacturing programs in this country will not be rebuilt.

Higher Education (HE)

HE.A. Increase the scope and volume of articulation agreements among high schools, two-year colleges, and four-year colleges, facilitating student movement among academic levels.

Using the analogy of a pipeline to describe students' movement through the educational system, the potential for "leaks" is greatest at the points of transfer between institutions. Students experience a variety of financial, academic, and emotional pressures throughout their college careers. However, some of the burden can be substantially reduced through greater cooperation between the students' sending and receiving institutions if transfer is involved. Institutional compacts that facilitate the movement of students' academic credits between schools, known as articulation agreements, can go beyond mere specification of academic requirements by colleges reviewing students' applications for admission to include collaborative curriculum development among institutions.

When clear articulation agreements do not exist between institutions, students typically are required to complete additional course work or to repeat courses in order to enter the new institution. These new requirements create undue financial and academic burdens for transfer students.

In addition to slowing the transfer process, insufficient academic preparation due to the lack of articulation can delay entry into college for high school graduates. It can also slow degree attainment for students transferring from two-year colleges to four-year colleges. Such delayed entry into college and longer transitions through college have been shown to translate into lower rates of college degree attainment. This relationship is complex, but friction in the system is an important factor when college costs absorb significant proportions of income. Students who must repeat courses or complete additional preparatory course work as the result of poor articulation ultimately pay more for their degrees and have a greater chance of dropping out due to frustration with extended school careers. The most significant impact of inadequate articulation is on minority students, who largely come from low income families. Needless costs incurred by delayed degree achievement will negatively affect such students' access and retention.

An excellent example of such linkages in action has been the Educational Mainstream program at the University of Hartford. This has established linkages at all levels. The elementary schools have been linked with middle schools; middle schools, with the high schools; and the high schools with the University of Hartford. This establishes the linkages necessary throughout student's educational programs.

HE.B. *Encourage interactions among levels of education beyond articulation agreements, particularly aiming at personal interactions among individuals with different levels of educational attainment.*

Persons who continue after high school into college are more likely to have had parents with higher educational attainment than are those who stop at lower levels of educational achievement. Role models show the way, whether through parental expectations or through the students' identification with jobs that require more education. Role models have been demonstrated in many studies to be an important determinant of educational attainment. Significant effort, sacrifice and will power are required for new generations to establish new, higher levels of educational accomplishment. Obviously, then, many who do not continue on to higher levels of education lack knowledge of what to expect at the next level.

Personal interactions among people at different educational institutions may be considered as just one more form of articulation for students between one level of achievement and the next. Articulation agreements as set out among colleges, and even more so between high schools and colleges typically involve only dialogue among administrators. Seldom are there contacts between administrators (and more importantly—students) at higher levels of education and students at lower levels. Our conception of articulation is that it must grow to include a slow, and informal, ongoing dialog among people at various educational levels. This must be conducted on a one-to-one basis in order for it to provide the knowledge and motivation to help those without prior knowledge to comprehend what lies ahead in an educational track.

Students carrying out such interactions would be engaged in the spirit of public service of the highest order. For this there might be established credit for community service. Better, since such interchange ought to involve low income students who have already gone on to higher levels of educational, it might involve some financial support to students who counsel in the downward direction.

HE.C. *Establish a comprehensive state curricula for students aspiring to continue through high school into college.*

The hardest chore for a teacher is to teach simultaneously students of widely varied backgrounds simultaneously. The more advanced and difficult the material, the more impossible the task. Yet, within the region, there is very little standardization of academic

programming. In Massachusetts, for example, there are only two state mandated courses—one each in physical education and in the social sciences. This significantly contributes to the widely disparate levels of education that are provided in our states' high schools even further.

By comparison, New York has maintained a long history of strong central control over curricular issues. The New York State Board of Regents not only makes up standardized tests in particular subject areas, but they also require a series of courses in foreign language, mathematics, English, and the social sciences. Students wishing to attend college after high school are heavily motivated to take the centralized curriculum. Students recognize that colleges will find the preparation of students, bifurcated by the Regents into college preparatory and non-college preparatory tracks, easily distinguishes among acceptable and unacceptable students. The result, coupled with standardized tests in mandated courses, is that New York State students enter college with greater homogeneity than students do when centrally mandated curricula do not exist.

HE.D. Provide non-punitive remediation for college-bound students outside of the curriculum that they will study in college.

Colleges currently require students who have not had adequate prerequisite preparation to take such material as remedial if it is judged to be sufficiently below entry level competency that it is not given academic credit. This is a significant component particularly as community colleges which operate with open admissions. There, of course, is nothing wrong with such remediation. However, there is little agreement about what standards should separate remedial and non-remedial coursework. And further, for many students who have had inadequate preparation in high school, remedial work is daunting. It raises the psychological, time and dollar costs of obtaining a degree. There is no wonder that students faced with such hurdles have the highest attrition rates in college; and, little wonder that the incidence of such attrition falls most heavily on the poor and racial and ethnic minorities. These are the students most often unprepared by their high school curricula. They can also least afford to pay most for their degrees.

We do not recommend any change on the part of the colleges. The failure here is in the students' secondary school preparation. There should consequently be remediation programs established in major urban areas, offering remedial work at no cost to the student. Establishing such remediation outside of the college setting separates the stigma and the burden of taking such courses from later perception of progress once enrolled in college. The course work should be free since students most needing it are least likely to be able to afford the course work if it were costly to them. Such course work will likely be successful because students who opt into the program will be older and self-selecting. These students are likely to be self-motivated.

HE.E. Create academic and social climates in higher educational institutions that will attract and retain minority students.

Academic success hinges on "a good fit" between the student and the educational environment. Researchers point to a relationship between the campus culture and individual student development — both intellectual and emotional. Effective academic and social integration into the campus culture increases the chances that an individual student will remain in school and graduate.

Student efforts to learn are affected by their interactions with both their faculty and their peers. In this context, minority students often report that predominantly white campuses present academic, social and psychological environments that are hostile and condescending . Under such conditions, it is easy for the learning, development, and educational achievement of minorities to be adversely affected. In such cases, a considerable amount of academic support, including counseling, tutoring, skills assessment and "mentoring," helps. Beyond this, it is clear that faculty-student interactions also are important in retaining students. Teaching the existing faculty to respond to a changing student body is the first step. However, colleges must increase efforts to hire faculty that reflect the racial and ethnic composition of society. Nationally, while the percentage of minority students enrolled in higher education rose from 15.7% to only 19.8% from 1976 to 1990, the minority share of full-time faculty positions has seen only marginal growth, increasing from 9.1% in 1981 to proportions still well below the student ratios, at 10.4% in 1987.

HE.F. *Provide facilities for women with children who wish to continue their studies.*

The data suggest that many young women have children without being married. Many continue raising the child without getting married. This implies less support for the mother than what might have been in a two adult household. These conditions require day care, counseling and other support within the student's academic environment. Colleges, however, have not traditionally provided such support, and without it, students are less likely to succeed.

HE.G. *Encourage college curricula development of cognitive and analytical skills which meet the career needs of graduates.*

Studies show that specific skills are useful in gaining initial employment and that general intellectual skills enhance adaptability and flexibility in a changing job market. There is some evidence that specific skills are less important to career progress than general intellectual skills and the ability to learn.

Balance must be created at all levels of higher education between career-specific course content and the broader development of general intellectual skills. Two-year community colleges have traditionally offered curricula that develop career-related skills. They must now broaden their curricula to better prepare students to think critically, to improve general literacy and to develop computational abilities. Graduates of two-year programs must "learn how to learn" so that they can easily continue their education as the labor market changes.

Four-year colleges all too regularly fail to connect their theoretical courses with "real world" issues isolating students from the pragmatic insight offered by good theory. These institutions can better prepare graduates for an increasingly competitive labor market by incorporating career-specific content into degree programs. Four-year colleges should promote the degree achievement of older students by recognizing that those students will relate better to high-level course work if it has practical, career-specific content incorporated directly into it.

HE.H. *Implement state-wide reviews of the missions across the various sectors of higher education—public and private, two-year and four-year.*

The blurring of roles between the public and private sectors has always been uncomfortable for the institutions involved. So also has been the blurring of roles among the two-year and four-year colleges, and within the public sector, of the roles of the state colleges and the state universities. Potential conflicts among the institutions become magnified when competition for students increases as secondary educational enrollment declines. Strong coordinating boards of higher education should be empowered to request mission statements from colleges and universities and to comment on their appropriateness. This is a difficult task since it is not desirable to buffet the individual campus' energy, a force most often trained on the institution's own self-conceived mission and marketing plan. There is no doubt, however, that the state would be best served so that more of its residents would complete their higher education, if each campus contributed specific tasks to a master game plan.

HE.I. *Produce a tuition policy that considers both the ability to pay and the region's economic need for specific skills.*

The cost of attending New England colleges has risen faster through the 1980's than both the rate of inflation and family incomes. Yet Massachusetts, Rhode Island, and to a lesser extent, Connecticut—the three New England states with the largest minority populations—cut grant aid to students in 1991-92. During this time, federal assistance also shrank, with awards decreasing and eligibility broadened to include students from families with higher incomes. Under these conditions, students with the fewest resources are squeezed between growing tuition and shrinking grant aid.

Tuition increases have a marked effect on both the decisions to apply and to attend college. Of course, the availability of grant aid has an offsetting positive affect on students' ultimate decisions about college. Careful studies have even found however, for low income students, that tuition hikes have greater influence on enrollment than does the availability of financial aid. The two do not fully offset each other.

Financial aid awards in New England have shifted toward students attending public colleges—where minorities are more likely to attend—because of the increasing costs of attendance in the public sector. In Rhode Island, the dollar share of state need-based aid to undergraduates in 1992 rose by 46% among those attending in-state public colleges while decreasing by 46.5% percent for those at in-state private colleges and by 19.7% for those at out-of-state colleges. During this time, Maine increased its need-based aid to undergraduates attending in-state public institutions by 143%, while increasing the share of dollars awarded to in-state private institutions by only 16.3%. Much of this is caused, of course, by the small size of the base amounts of aid previously received in the public sector.

In New England, state appropriations for higher education, including financial aid, have not kept pace with the inflation rate for higher education operating costs. Covering these budget shortfalls with increased tuition will increase the difficulties for students from lower and middle-income families. Because a greater proportion of minority students attend public institutions, it is especially important, if we want to increase minority enrollment, to manage such tuition increases wisely. Financial support is critical to providing all students with a quality education and to ensuring minority access to the corridors of higher education. Now is the time to consider policies enacted in the past under conditions of dire budget cuts. Policies so implemented do not necessarily produce the optimal outcome as policy for improving the work force quality.

HE.J. *Apply financial assistance among campuses so as to maximize system-wide attendance and attainment across the entire state.*

College campuses award a variety of federal, state and institutional financial aid in the form of work study, tuition waivers, student incentive grants, scholarships and loans. More needs to be determined about the effects of loan assistance on enrollment and choice behavior, but the perceived risks and lack of prior experience with long term loan burdens are thought to discourage minority and low income students from borrowing to attend college. Rising attendance costs and shifts in financial aid from grants to loans take a toll among students, the greatest toll falling on minority students who tend to be from low-income families and who are therefore most vulnerable to rising costs.

Financial aid packages must be created to help bolster minority and low income student access and retention. For example, these might make grant money available early on in a student's program. They might increase the proportion of costs covered by loans during a student's junior and senior years. The combination should promote retention. As students become more committed to finishing a degree, the perceived risks of loan aid are reduced. Another alternative that might be used when financial aid is needed would place minority and low income students into challenging work study positions that could also provide mentoring support. Work study positions that promote career awareness have been found to have positive effects on minority student persistence.

There is a wide variety of patterns in both transfer and attrition records among students as well as in career aspirations among students across campuses. These records of likely success should generate further study into the effects of financial aid. Study should be given to the effect on ultimate achievement of differences among aid packages. Emphasis should be placed on discovering the effects of such variables as the student's career objectives, sector of first attendance (public/private, two-year/four-year) and income. The goal of such a study should be to determine if there are effective patterns of grants and loans which will maximize the volume of total attainment among students, measured perhaps as the sum of grades of schooling attained. Weighted by salary to be earned with completion of each grade. If differences are observable in the impact of financial assistance, then that pattern of assistance which produces the greatest total educational attainment in a state should be implemented in the granting of assistance among students.

HE.K. Provide alternative means of repayment of loans—making these income-contingent and allowing repayment through community service, particularly where such service increases the educational preparedness of future generations of students.

Financial aid available from the federal government is increasingly shifting from grants to loans. Loans have increased in share from 56% to 65% of federal aid. Over the last ten years, Pell grants have also continued to cover a declining percentage of total tuition costs, forcing low income students to borrow student loans in increasing amounts. Furthermore, the gap has widened between authorized maximum Pell grant awards and actual awards, as greater numbers of students qualify for grant aid. Lower-income students already are borrowing at faster rates than higher income students. Without some reform of loan repayment programs, greater loan burdens for low income students will perpetuate the economic inequities which education struggles to undo as low income and minority students suffer under increasingly heavy debt loads.

The trend toward decreasing student aid and increasing costs is likely to continue as the federal government faces political pressure to increase assistance for middle income students, and as states deal with their own potential budget deficits. Loan programs, in particular, which offer hope for equality of educational and economic opportunity for low income minority students include:

- **Community service.** Current projections indicate that 300,000 people nationwide could be participating in loan repayment programs by 1994. The New England states and their educational institutions should take the lead in developing community service opportunities for students. This should go beyond the Clinton Administration's National Service program, which will only allow less than 1% of all financial aid recipients to repay student loans in this manner. Loan repayment through community service programs may lower the financial risk to minority students. Without such restructuring, such students might postpone or forego college attendance. Defaults on

repayment under a community service program are expected to decrease because repayment is tied to service not income. Finally, communities can benefit from repayment programs, as minority students or graduates participate in community programs and serve as important role models for minority youth.

- **Income Contingent Loans.** Income contingent loans are an important part of the financing arsenal for the most "at risk" student loan repayers for two reasons. First, such loans should produce lower loan default rates because repayment schedules are tied to income following graduation. Such loans promote economic opportunity and lessen the post-graduation debt burden on minority graduates who, after graduation, might still earn less than other students. Establishing such benefits is important, but importantly income contingent loan programs can still establish a return on investment that significant capital can be attracted to the venture.

- **Private Industry Participation in Loan and Grant Programs.** We need increased educational attainment within the New England population in order that the regional industry will continue to compete well. If this costs more in grant and loan aid for students, it is only natural that some of the payment of associated costs come from the industry most benefiting from the program. Outright grant assistance from industry associations or participation in employer loan repayment programs would be warranted. Under such a program, however, we would need to seek mechanisms which prevent employers from expressing preferences for employees with lower loan repayments - hence, biasing employment to students from higher income families.

